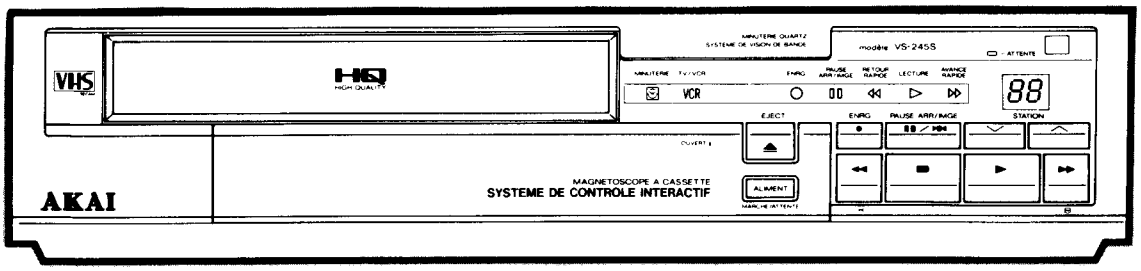
AKAI SERVICE MANUAL



MODEL VS-245S

VIDEO CASSETTE RECORDER

MODEL VS-240SK

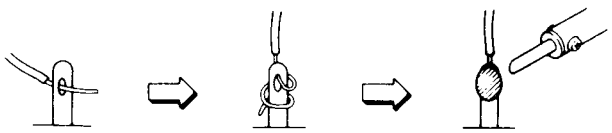
MODEL VS-244/245S

MODEL VS-247/248S

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locatoins.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms. but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be headphone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode when heated excessively.

[OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type only.
- Use soldering iron in "recommended way" only.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not recharge battery.
- Do not dispose of battery in fire.

[DANGER]

[RECOMMENDED WAY]

★INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

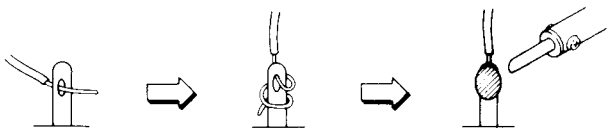
Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

★INSTRUCTION DE SECURITE

PRECAUTIONS A OBSERVER PENDANT LA REPARATION

1. Les pièces identifiées par le symbole ⚠ sont des pièces critiques pour la sécurité. Elles ne doivent être remplacées que par des pièces de numéro spécifié.
2. Outre la sécurité, certaines pièces et ensembles sont spécifiés pour être conformes à des réglements tels que ceux s'appliquant à l'émission de parasites. Ils doivent aussi être remplacés par des pièces de rechange spécifiées.
   Exemples: Convertisseurs RF, unités tuner, sélecteurs de déparasitage, filtres de déparasitage, etc.
3. Utiliser le câblage interne spécifié. Noter spécialement:
   1) Fils recouverts de tube PVC
   2) Fils à double isolement
   3) Fils haute tension
4. Utiliser des matériaux d'isolement spécifiés pour les parties sous tension dangereuses. Noter spécialement:
   1) Bande d'isolement
   2) Tube en PVC
   3) Rondelles (barrières d'isolement)
   4) Feuilles d'isolement pour transistors
   5) Vis en plastique de fixation pour microrupteur (particulièrement pour tourne-disque)
5. Lors du remplacement de composants du côté courant alternatif primaire (transformateurs, cordons d'alimentation, condensateurs de déparasitage, etc.), enrouler soigneusement les extrémités des fils autour des bornes avant de procéder au soudage.



6. Faire attention à ce que les fils n'entrent pas en contact avec des parties produisant de la chaleur (radiateurs, résistances à film oxyde métal, résistances fusibles, etc.)
7. Contrôler que les fils remplacés n'entrent pas en contact avec des bords tranchants ou des parties pointues.
8. Contrôler aussi les zones voisines des endroits réparés.
9. Faire attention à ce que des corps étrangers (vis, gouttelettes de soudure, etc.) ne demeurent pas à l'intérieur de l'appareil.

CONTROLE DE SECURITE APRES LA REPARATION

Vérifier que la résistance d'isolement spécifiée entre les bornes du cordon d'alimentation et les pièces exposées extérieures de l'appareil soit supérieure à 10 Mohms, mais pour l'équipement avec des bornes d'antennes extérieures (tuner, ampli-tuner, etc.) prévue pour [C] ou [A], la résistance d'isolement spécifiée doit être supérieure à 2,2 Mohms (bornes de terre, prises de microphones, prises de casque, prises d'entrée-sortie de ligne, etc.)

PRECAUTIONS A PRENDRE POUR LA PILE AU LITHIUM

La pile au lithium risque d'exploser lorsqu'elle est trop chauffée.
(OBSERVE LES POINTS SUIBANTS LORS DU REPLACEMENT)

- Ne remplacer qu'avec la même marque et le même type.
- N'utiliser le fer à souder que de la "manière recommandée".
- Placer la pile en respectant la polarité.
- Ne pas court-circuiter les bornes.
- Ne pas recharger la pile.
- Ne pas jeter la pile au feu.

[DANGER]

[RECOMMENDED WAY]

★INFORMATION

SYMBOLES POUR DESTINATION ORIGINELLE

Les lettres de l'alphabet indiquent la destination des unités come il est indiqué dans la liste ci-dessous.

Symboles	Destination Originelle
[A]	les Etats Unis
[B]	la Grande Bretagne
[C]	le Canada
[E]	l'Europe
[J]	le Japan
[S]	l'Australia
[V]	l'Allemagne
[U]	Universel aire
[Y*]	Douane

SPECIFICATIONS

Format		VHS Standard
Video recording system		Rotary, slant azimuth two-head helical scan system
Rotary Heads		Two video heads
RF input	VS-244/245/247/248S	System L VHF: ch A to C, 1 to 6 UHF: ch 21 to 69 CABLE: ch B-Q (VS-247/248S)
	VS-240SK	System D, K VHF: ch 1 to 3, 4 to 9 UHF: ch 21 to 69
RF output	VS-244/245/247/248S	System L type modulation UHF: ch 30 to 39 adjustable (preset ch 36)
	VS-240SK	System K type modulation VHF: ch 4, 5 switchable (preset ch 5)
Recording (line input)		SECAM, CCIR
Playback (line input)		SECAM, CCIR
Video		
Line input level		0.5 to 2.0 Vp-p/75 ohms, unbalanced
Line output level		1.0 Vp-p/75 ohms, unbalanced
S/N ratio		More than 45 dB
Horizontal resolution		More than 220 lines
Audio		
Line input level		−8 dBm/50 kohms, unbalanced
Line output level		−6 dBm/1 kohms, unbalanced
S/N ratio		More than 40 dB
Frequency response		70 to 10,000 Hz
Recording/Playback time		240 min. with E-240 cassette
Tape speed (SP Mode)		23.39 mm/sec
Quick finder (SP Mode)		Approx. 7 times normal speed
FF, REW time		Approx. 5 min. with E-240 cassette
Timer		
Programs		4 programs/2 week and sleep timer
Clock reference		Quartz crystal
Display		TV screen (Tape counter, Timer etc.)
Power requirements		220V AC, 50 Hz
Power consumption		29W
Operating temperature		5°C to 40°C (41°F to 104°F)
Dimensions		425 (W) x 95 (H) x 345 (D) mm
Weight		5.9 kg

* For improvement purposes, specifications and design are subject to change without notice.;

SPÉCIFICATIONS

Format	VHS standard
Système d'enregistrement vidéo	Système à deux têtes rotatives, à azimutage incliné, à balayage hélicoidal
Têtes rotatives	Deux têtes vidéo
Entrée RF (HF) VS-244/245/247/248S	Système L Canaux VHF A à C, 1 à 6 Canaux UHF 21 à 69 Canaux Câble B à Q
VS-240SK	Système D, K Canaux VHF 1 à 3, 4 à 9 Canaux UHF 21 à 69
Sortie RF (HF) VS-244/245/247/248S	Système L, type modulation, canaux réglables UHF 30 à 39 (préréglé sur canal 36)
VS-240SK	Système K, type modulation, canaux commutable VHF 4, 5 (préréglé sur canal 5)
Enregistrement (entrée de ligne)	SECAM, CCIR
Reproduction (sortie de ligne)	SECAM, CCIR
Vidéo Niveau d'entrée de ligne Niveau de sortie de ligne S/B Résolution horizontale	 0,5 à 2.0 Vp-p/75 ohms, assymétrique 1,0 Vp-p/75 ohms, assymétrique Plus de 45 dB Plus de 220 lignes
Audio Niveau d'entrée de ligne Niveau de sortie de ligne S/B Réponse en fréquence	 –8 dB/50 kohms, assymétrique –6 dB/1 kohm, assymétrique Plus de 40 dB 70 Hz à 10.000 Hz
Durée enregistrement/reproduction	240 mn avec cassette E-240
Vitesse de bande	23,39 mm/s.
Recherche rapide	Approx. 7 fois la vitesse normale
Durée avance rapide/rembobinage	Approx. 5 mn avec acassette E-240
Minuterie Programmes Référence d'horloge	 4 programmes/2 semaines et minuterie sommeil Cristal de quartz
Affichage	Ecran TV (compteur de bande, minuterie, etc.)
Alimentation	220 V CA, 50 Hz
Consommation	29 W
Température de fonctionnement	5°C à 40°C
Dimensions	425 (L) x 95 (H) x 345 (P) mm
Poids	5.9 kg

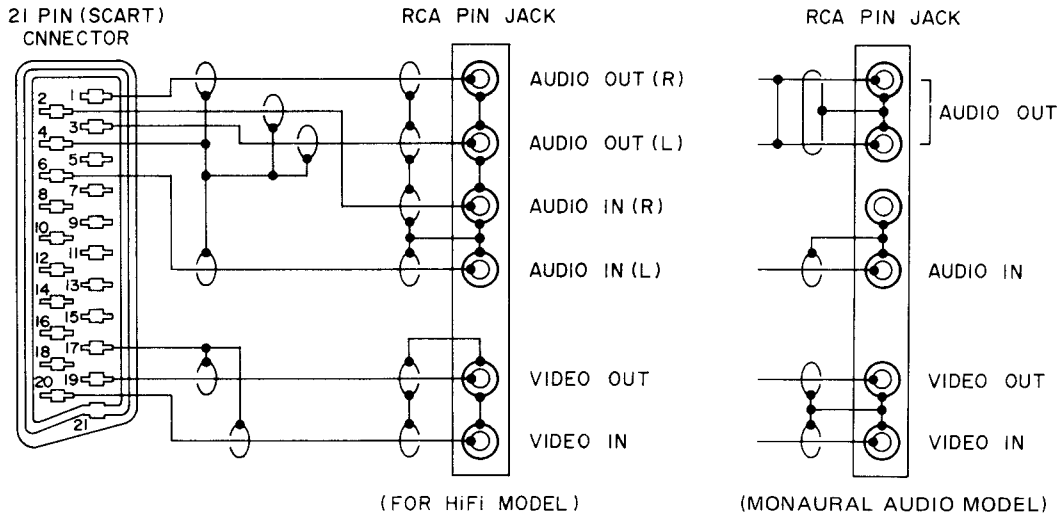
* Par suite d'améliorations, la présentation et les spécifications sont susceptibles de modification sans préavis.

I. EXPLANATION OF 21 PIN (SCART) CONNECTOR

The RCA PIN connectors have been used for LINE IN/OUT terminals with the conventional models, while a 21 PIN (SCART) connector is used with this model.
An adaptor shown below may be necessary in order to conduct an alignments by connecting test equipments with LINE IN/OUT terminals in same manner as with the models using the RCA PIN connectors.

I. EXPLICATIONS A PROPOS DU CONNECTEUR A 21 BROCHES (PERI-TELE)

Les connecteurs à broches RCA ont été utilisés pour les bornes d'entrée/sortie de ligne (LINE IN/OUT) avec les modèles conventionnaux alors que le connecteur à 21 broches (PERI-TELE) est utilisé avec ce modèle.
Un adaptateur, indiqué ci-dessous, pourrait être nécessaire afin d'effectuer un alignement en connectant des appareillages d'essais avec les bornes d'entrée/sortie de ligne (LINE IN/OUT) de la même manière qu'avec les modèles utilisant les connecteurs à broches RCA.



NOTES:
1. Use JACK PLATE VIDEO (Part number EJ-354211) for RCA PIN CONNECTOR.
2. The 21 PIN (SCART) connector for this adaptor will not be supplied, commercially available parts should be used.

REMARQUE:
1. Utilisez une plaque de prise vidéo (JACK PLATE VIDEO) (Numéro de pièce détachée EJ-354211) pour un connecteur à broche RCA.
2. Le connecteur à 21 broches (PERI-TELE) pour cet adaptateur ne sera pas fourni, des pièces détachées disponibles dans le commerce doivent être utilisées.

II. SAFETY LOCK SYSTEM

This VCR can be locked to prevent access by small children. This feature can be operated by the remote control only.
To lock:

With the VCR POWER ON, depress and hold the remote control's STOP button for 4 seconds. An "L" will momentarily flash on the PROGRAM display. Tape play will not function until the VCR is unlocked.

To unlock:

Depress and hold the remote control's PLAY button for 4 seconds.
Even if the POWER is turned off, the VCR will remain locked until released.

II. SYSTÈM DE VERROUILLAGE DE SÉCURITÉ

Ce magnétoscope à cassettes peut étre verrouillé afin d'en empêcher l'accès à des enfants en bas age. Cette caractéristique fonctionne seulement a vec la télécommande.
Pour verrouiller:

L'alimentation (ALIMENT) du magnétoscope à cassettes étant sous tension, pressez et maintenez engagée la touche d'arrêt (STOP) de la télécommande durant 4 secondes. Un "L" clignotera momentanément sur l'affichage de programme (PROGR.). La lecture de bande ne fonctionnera pas jusqu'à ce que le magnétoscope à cassettes soit déverrouillé.

Pour déverrouiller:

Pressez et maintenez engagée la touche de LECTURE durant 4 secondes.
Le magnétoscope à cassettes restera verrouillé jusqu'à relâchement du verrouillage même si l'alimentation (ALIMENT) est mise hors circuit.

III. RESETTING MEMORY OF CPU

3-1. RESETTING OF OPERATION/SYSCON CPU (ONLY)

1) Disconnect AC power cord then disconnect P951 (back up) on the OPERATION PC Board.
2) Connect P851 back in its place.
3) The OPERATION and SYSCON CPU are reset with above steps.
   NOTE: With this procedure, presetted TV stations are not reset. For resetting of TV stations, refer to 3-2.

3-2. RESETTING OF TV STATIONS AND OPERATION/SYSCON CPU

1) Disconnect AC power cord.
2) While holding "REC" and "REW" buttons depressed simultaneously, connect AC power cord. The TIMER display will flash.
3) Disconnect AC power cord again to stop flashing TIMER display.
4) Presetted TV stations and OPERATION/SYSCON CPU are reset with above steps.

The chart bellow shows each function after the reset.

CLOCK	SUN 0:00 00
CHANNEL	Displays lowest channel number
DISPLAY	Flashes clock display
CHILD LOCK	The same condition as before reset
TAPE COUNTER	0000
TV/VCR	TV

III. REMISE DE LA MEMOIRE DE L'UNITE CENTRALE DE TRAITEMENT

3-1. REMISE DE MODE/DU PUPITRE DE COMMANDE DE L'UNITE CENTRALE DE TRAITEMENT (SEULEMENT)

1) Débrancher le cordon d'alimentation de courant alternatif et, ensuite, débrancher le P951 (alternative) sur la tablette de circuits imprimés.
2) Brancher le P951 de nouveau sur sa place.
3) Le mode et le pupitre de commande de l'unité centrale de traitement sont remis au moyen des mesures précitées.
   NOTE: Les stations de télévision réglées d'avance ne sont pas remises à l'aide de ce procédé. Voir le 3-2 pour remettre des stations de télévision.

3-2. REMISE DES STATIONS DE TELEVISION ET DU MODE/DU PUPITRE DE COMMANDE DE L'UNITE CENTRALE DE TRAITEMENT

1) Débrancher le cordon d'alimentation de courant alternatif.
2) Relier le cordon d'alimentation de courant alternatif en s'appuyant sur les poussoirs "ENRG." et "RETOUR RAPIDE" en même temps. L'affichage du chronométrage étincellera.
3) Débrancher le cordon d'alimentation de courant alternatif de nouveau pour arrêter l'affichage du chronométrage étincellant.
4) Les stations de télévision réglées d'avance et le mode/le pupitre de commande de l'unité centrale de traitement sont remis au moyen des mesures précitées.

Le tableau ci-dessous montre chaque fonction aprés la remise.

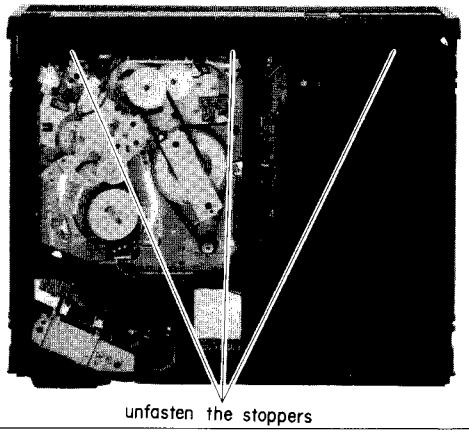
Horloge	Dimanche 0:00 00
Canal	Il affiche le numéro de canal le moins élevé
Verrouillage de sécurité	Dans les mêmes conditions qu'avant la remise
Compteur de bande	0000
TV/VCR	TV

IV. DISASSEMBLY/DEMONTAGE

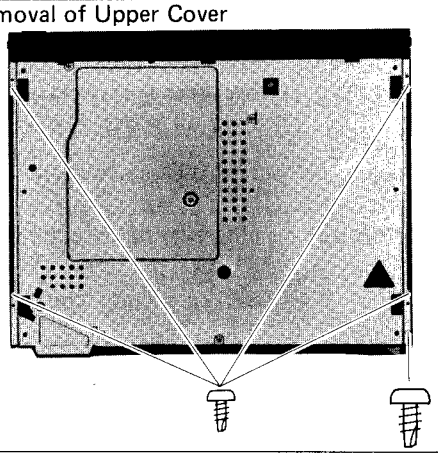
In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

Au cas d'une panne, etc, qui requiert le démontage, veuillez l'effectuer selon la séquence indiquée sur les photos. Effectuer le remontage selon la séquence inverse.

4 Removal of Front Panel



1 Removal of Upper Cover



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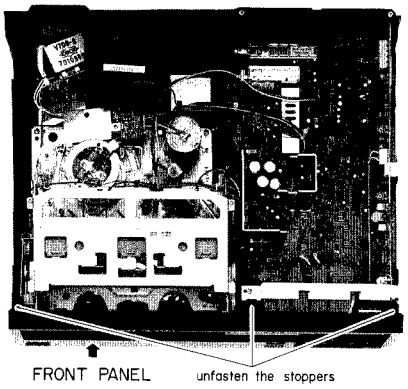
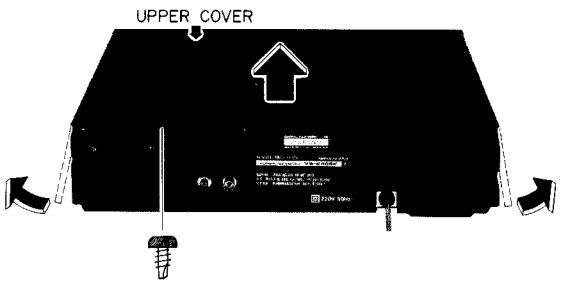
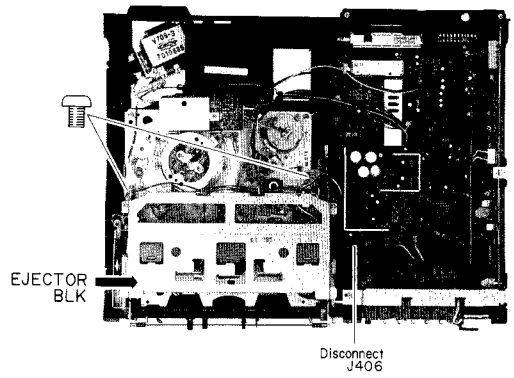


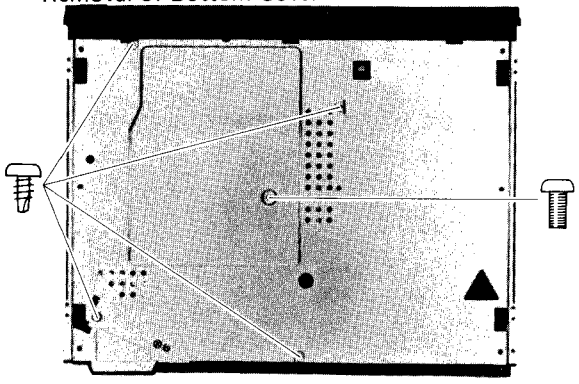
2



6 Removal of Ejector BLK.



3 Removal of Bottom Cover



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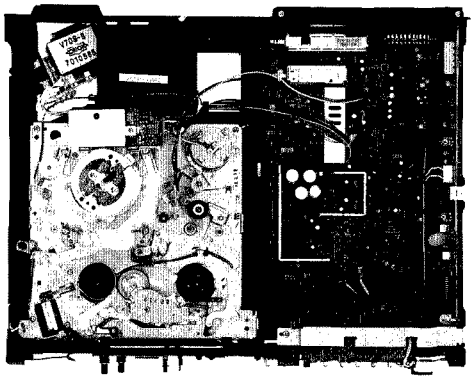


* Photographs employed in this paragraph is model VS-240SK.

* C'est le modèle VS-240SK qui se réfère aux photos employées dans ce paragraphe.

V. CONTROLS/COMMANDE

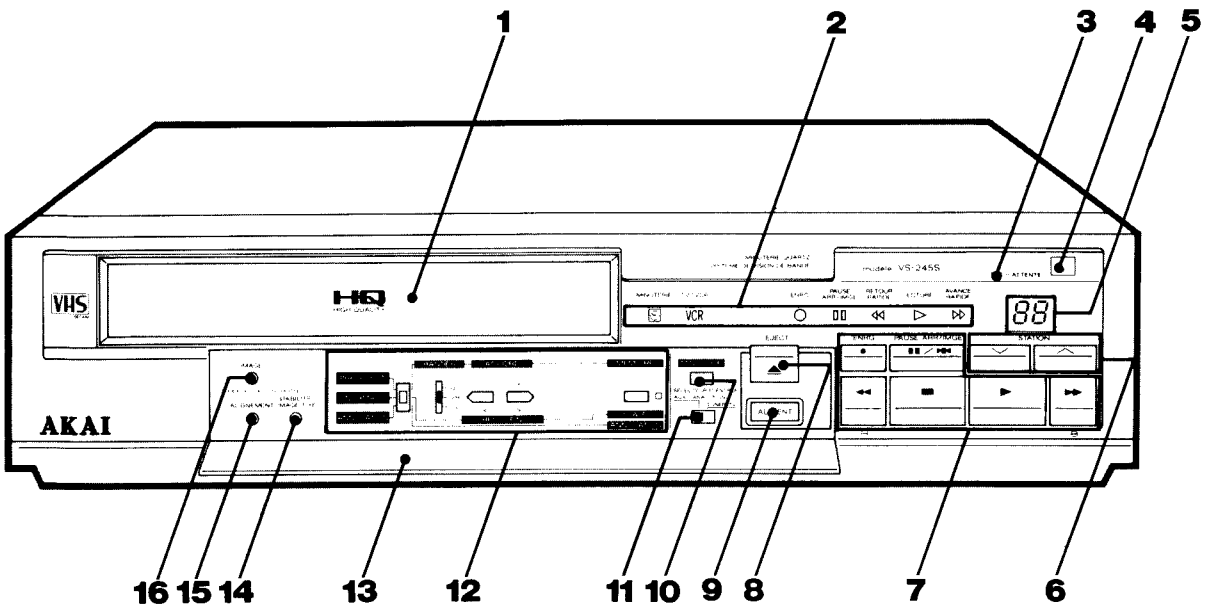


Fig. 5-1 Front

1. **Load the video cassette tape here.**
2. **VCR status display.**
   Tells you what the VCR is doing.
3. **STAND-BY indicator.**
   Tells you the power cord is plugged in.
4. **To receive the remote control signal from the Akai Wireless Remote Control Unit.**
   * Keep this window clean for remote control operation.
5. **CHANNEL display.**
6. **CHANNEL selector.**
   To select a preset channel with the built-in tuner of the VCR.
7. **Tape transport buttons.**
   To run the tape for recording or playback.
8. **EJECT button.**
   To eject the video cassette tape.
9. **POWER button.**
   To turn on and off the Akai VCR.
10. **TIMER button.**
    To stand by for automatic recording.
11. **AUX (CANAL PLUS)/TUNER (TV) selector**
    To select input signal Decoder or AUX.
12. **Tuning controls.**
    To tune in preset channels.
13. **Tuning control cover panel.**
14. **STILL TRACKING control.**
    To fine tune the STILL play back picture.
15. **TRACKING control.**
    To fine tune the play back picture.
16. **SHARP/SOFT PICTURE control.**
    To soften or sharpen the play back picture.

1. **Chargez la bande cassette vidéo ici.**
2. **Affichage de l'état du magnétoscope à cassettes.**
   Vous indique ce que le magnétoscope à cassettes est en train de faire.
3. **Indicateur d'ATTENTE.**
   Vous indique que le cordon d'alimentation est branché.
4. **Pour recevoir le signal de télécommande provenant dusystème de télécommande sans fil Akai.**
   * Gardez cette fenêtre propre pour l'utilisation de la télécommande.
5. **Affichage de STATION.**
6. **Sélecteur de STATION.**
   Pour sélectionner une station préréglée avec le tuner incorporé du magnétoscope à cassettes.
7. **Touches de transport de la bande.**
   Pour faire défiler la bande pour l'enregistrement ou la reproduction.
8. **Touche d'éjection (EJECT).**
   Pour éjecter la bande cassette vidéo.
9. **Commutateur d'alimentation (ALIMENT)**
   Pour mettre sous tension et hors circuit le magnétoscope à cassettes Akai.
10. **Touche de MINUTERIE.**
    Pour une attente d'enregistrement automatique.
11. **Sélecteur d'ENTREE AUX (CANAL PLUS)/ TUNER(TV).**
    Pour sélectionner l'entrée décodeur ou AUX.
12. **Commandes de syntonisation (REGL. FIN)**

    Pour syntoniser des stations préréglées.
13. **Couvercle des commandes de syntonisation.**
14. **Commande de STABILITE IMAGE FIXE.**

    Pour syntoniser finement l'image lors d'un arrêt sur image.
15. **Commande d'ALIGNEMENT.**
    Pour syntoniser finement l'image reproduite.
16. **Commande de CONTOUR DOUX/DUR.**

    Pour adoucir ou contraster l'image reproduite.

VS-244/245/247/248S

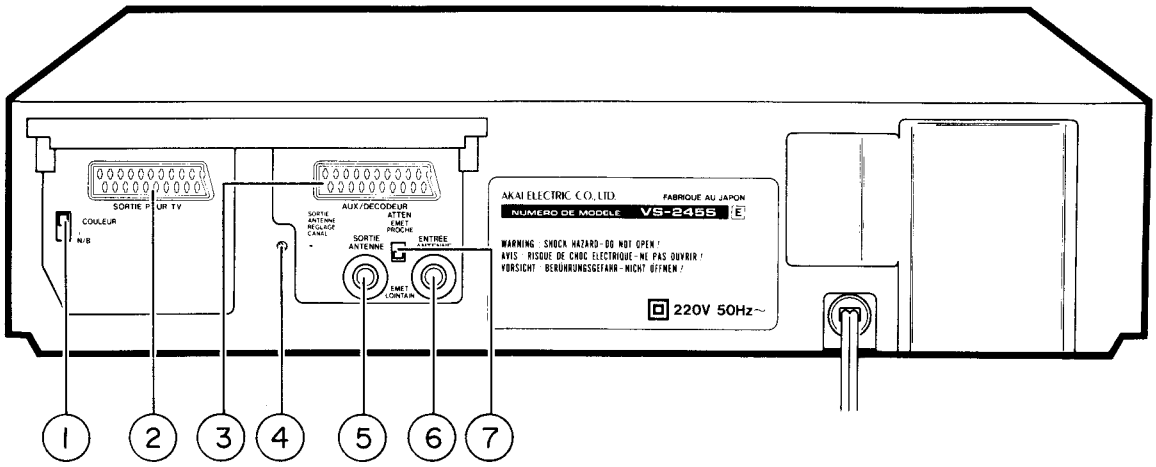


Fig. 5-2 Rear

1. VIDEO MODE SELECTOR
2. OUTPUT CONNECTOR FOR TV
3. AUX/DECODER CONNECTOR
4. RF OUT CHANNEL ADJUST
5. RF. OUT
6. ANT. IN
7. LOCAL/DX ATTENUATOR SWITCH

1. SELECTEUR DE MODE VIDEO
2. SORTIE POUR TV
3. AUX/DECODER
4. SORTIE ANTENNE REGLAGE CANAL
5. SORTIE ANTENNE
6. ENTREE ANTENNE
7. ATTENUATEUR EMET. PROCH/EMET. LOINTAIN

VS-240SK

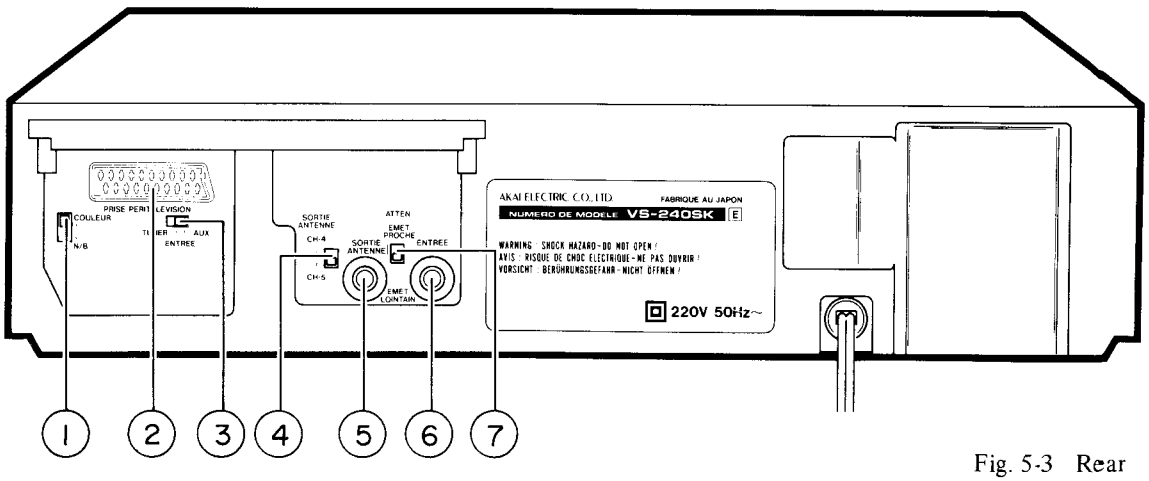


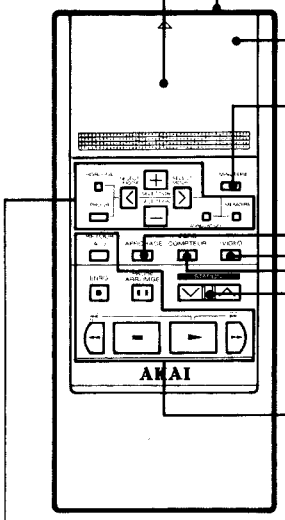
Fig. 5-3 Rear

1. VIDEO MODE SELECTOR
2. OUTPUT CONNECTOR
3. INPUT SELECTOR
4. RF OUT CHANNEL SELECTOR
5. RF. OUT
6. ANT. IN
7. LOCAL/DX ATTENUATOR SWITCH

1. SELECTEUR DE MODE VIDEO
2. PRISE PERITELEVISION
3. SELECTEUR DE ENTREE
4. SORTIE ANTENNE REGLAGE CANAL
5. SORTIE ANTENNE
6. ENTREE ANTENNE
7. ATTENUATEUR EMET. PROCH/EMET. LOINTAIN

REMOTE CONTROL UNIT/SYSTÈME DE TÉLÉCOMMANDE

The remote control contains operation buttons which are used the same way as the operation buttons on the front panel of the Akai VCR, and many which appear on the remote control only. The remote control can be used from a distance of up to 5 meters.



Channel number buttons. (Hidden under cover.)
Use these buttons for immediate access to any station without scanning the whole band. For single digit stations, press"0" and the number, or just the number itself.

Transmitter beam

POWER button. (Hidden under cover.)

TIMER button.
To stand-by for automatic recording.

DISPLAY button.
To choose the CLOCK/COUNTER and display it on the TV screen.

TV/VIDEO selector button and indicator
To select the input signal to the home TV.

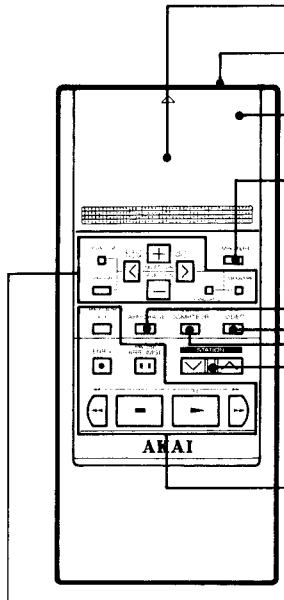
Counter RESET button.
To reset the tape counter to "0000".

Channel selector

Tape transport buttons

To set and store all the CLOCK and PROGRAM settings.
SET and SHIFT and MEMORIZE buttons.
PROGRAM button.
CLOCK button.
MEMO and CANCEL buttons.

L'unité de télécommande comporte des touches de fonction qui s'utilisent de la même manière que celles du panneau frontal du magnétoscope à cassettes Akai et de nombreuses autres qui ne se trouvent que sur l'unité de télécommande. L'unité de télécommande peut être utilisée d'une distance allant jusqu'à 5 mètres.



Touches de numéro de station.
(Dissimulées sous le couvercle).
Utilisez ces touches pour un accès immédiat à n'importe quelle station sans avoir à balayer l'intégralité de la gamme. Appuyez sur le "0" et sur un autre chiffre ou juste sur le chiffre nécessaire pour appeler des stations ayant un chiffre à une unité.

Rayon de l'émetteur

Touche d'alimentation (ALIMENT).
(Dissimulée sous le couvercle).

Touche de MINUTERIE.
Pour une attente d'enregistrement automatique.

Touche d'AFFICHAGE.
Pour choisir l'HORLOGE/COMPTEUR et l'afficher sur l'écran de télévision.

Touche de sélection TV/VIDEO.
Pour sélectionner le signal d'entrée vers le téléviseur.

Touche de remise à ZERO COMPTEUR.
Pour remettre à "0000" le compteur de bande.

Sélecteur de STATION.

Touches de transport de bande

Pour régler et mettre en mémoire tous les réglages d'HORLOGE et de PROGRAMME.
Touches de SELECTION, de MODIFICATION et de MEMOIRE.
Touche de PROGRAMME.
Touche d'HORLOGE.
Touches de MEMOIRE et d'ANNULATION.

VI. PRINCIPAL PARTS LOCATION

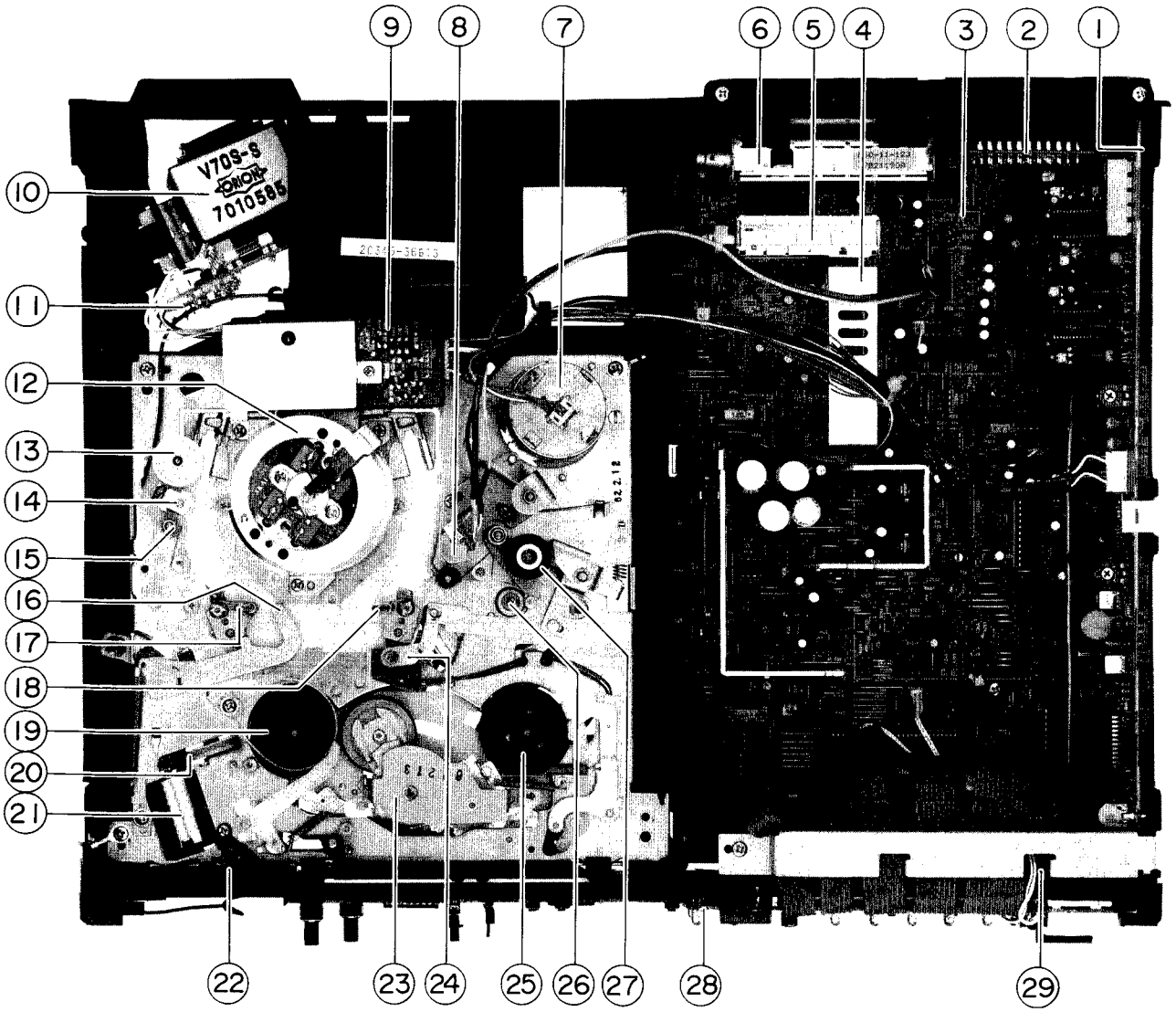


Fig. 6-1 Top View

1. MAIN (VIDEO) PCB
2. CONNECTOR PCB (VS-240SK model only)
   CANAL PLUS PCB (VS-244/245/247/248S model only)
3. MAIN PCB
4. VIF UNIT
5. TUNER UNIT
6. RF-CONVERTER
7. CAPSTAN MOTOR (M902)
8. AUDIO/CONTROL HEAD
9. PRE-AMP PCB
10. POWER TRANSFORMER (T1)
11. TRANS PCB
12. HEAD DRUM BLK
13. IMPEDANCE ROLLER
14. FULL ERASE HEAD
15. SUPPLY TAPE GUIDE
16. TENSION ARM
17. LOADING LEADER LEFT
18. LOADING LEADER RIGHT
19. SUPPLY REEL TABLE
20. SYNCHRO BELT
21. LOADING MOTOR (M903)
22. REC SAFETY SW (SW1)
23. TAKE UP GEAR BLK
24. SENSOR LED
25. TAKE UP GEAR BLK
26. CAPSTAN SHAFT
27. PINCH ROLLER
28. OPERATION (A) PCB
29. OPERATION (B) PCB

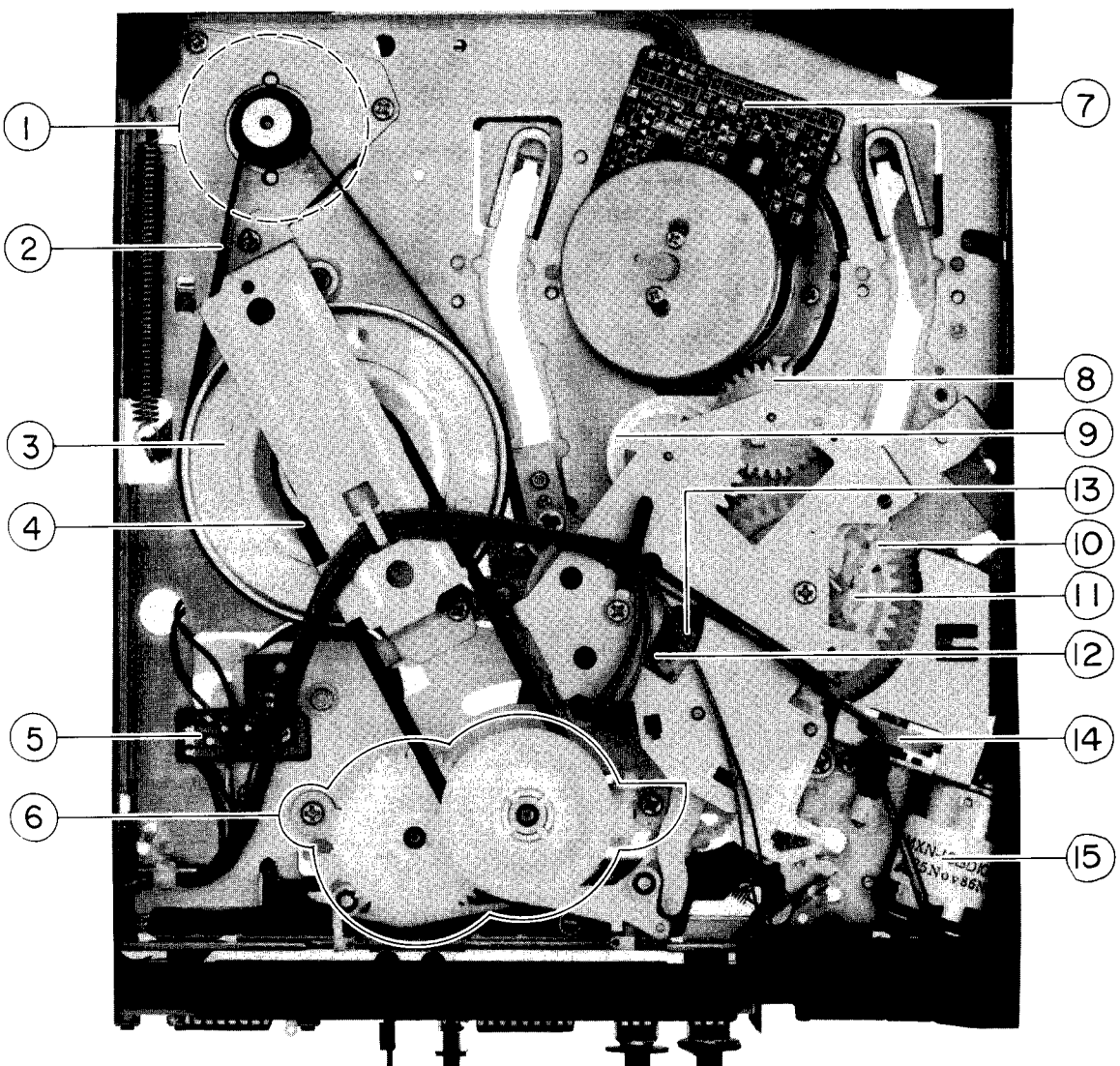


Fig. 6-2 Bottom View

1. CAPSTAN MOTOR
2. CAPSTAN BELT
3. CAPSTAN FLYWHEEL
4. IDLER BELT
5. REEL SENSOR PCB
6. TAKE-UP GEAR BLOCK
7. DRUM MOTOR BLOCK
8. SUPPLY LOADING GEAR
9. TAKE-UP LOADING GEAR
10. EJECT CAM GEAR
11. EJECT SWITCH
12. ROTARY ENCORDER
13. MAIN GEAR CAM
14. SYNCHRO BELT
15. LOADING MOTOR

7-1. BACK TENSION ADJUSTMENT

1) Remove the EJECTOR BLK, and disconnect P406 from MAIN PCB.
2) Depress the POWER button on the Front Panel.
3) Short pin ③ (C. SW. B) and pin ⑤ (GND) of P406 with a tweezer or jamper wire as shown in Fig. 6-1 to maintain the tape loaded made without Ejector BLK.

7-1. REGLAGE DE LA TENSION LIBRE

1) Enlevez le bloc d'éjection et d'econnectez P406 du circuits imprimés MAIN.
2) Appuyez sur le comutateur de ALIMENT sur le panneau frontal.
3) Court-circuiter la fixhe ③ (C. SW-B) et la fiche ⑤ (GND) du P406 à pincette ou à fil-jarretière, selon les indications dans la Figure 6-1, destinées à maintenir la bande dans le mode chargé sans le bloc éjecteur.

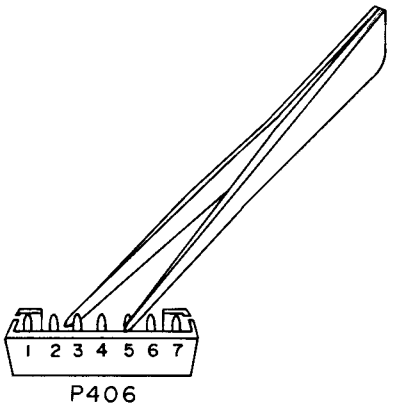


Fig. 7-1 Connector P406

4) Set the Back Tension jig (AT-751181) on the Reel tables and put some weight on the Back Tension jig as a stabilizer.
5) Press the PLAY button, then check and adjust back tension as 30 ~ 35 g-cm by the TENSION HOLDER position.

4) Régler le mécanisme de contre-tension (AT-751181) sur les tables de bobine et ajouter du poids au mécanisme de contre-tension pour le stabiliser.
5) Appuyez la touche lecture (PLAY), vérifiez et réglez la tension libre comme 30 ~ 35 g-cm par la position du support de tension. (TENSION HOLDER).

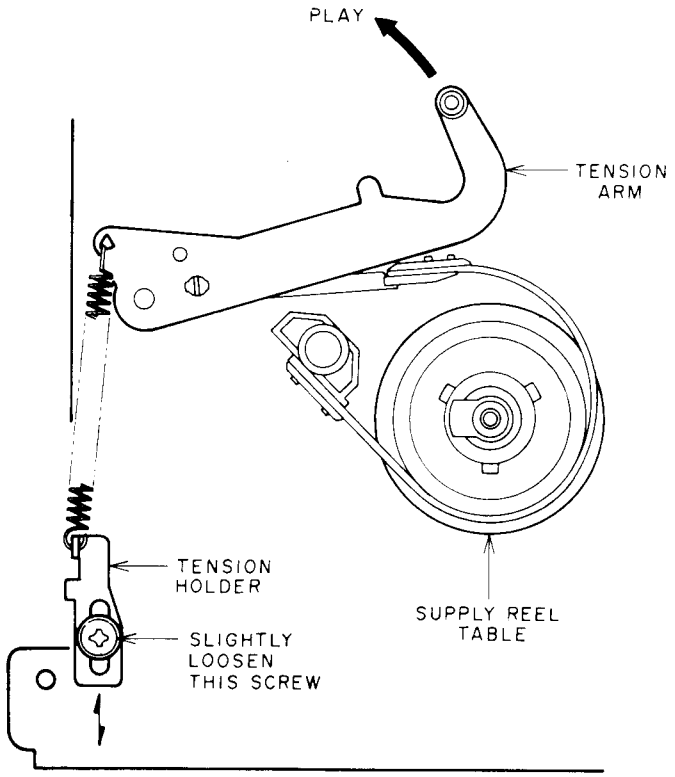


Fig. 7-2

7-2. LOADING LEADER HEIGHT ADJUSTMENT

1) Slightly loosen the set screw at the lower part of the LOADING LEADER so that the LOADING LEADER can be adjusted with reasonable tightness. Adjust the coarse height of the LOADING LEADER from the base mount as 0.6 to 0.8 mm.
2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
3) Connect an oscilloscope to TP1 RF ENVELOPE Test terminal on the MAIN P.C BOARD and turn the LOADING LEADER height adjustment screw head to obtain the flat envelope as Fig. 7-5 idela envelope.

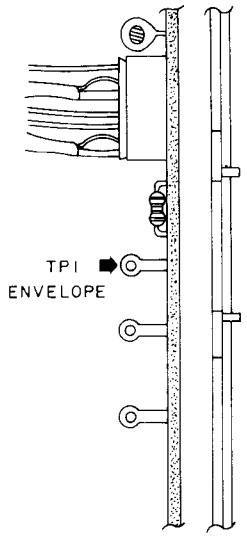


Fig. 7-3

7-2. REGLAGE DE LA HAUTEUR DU GUIDE DE CHARGEMENT

1) Relâchez légèrement, la vis sur la partie la plus basse du guide de chargement, de sorte que le guide de chargement puisse être ajusté avec une dureté raisonable.
   Ajustez la hauteur approximative du guide de chargement à partir de la base de montage comme 0.6 à 0.8 mm.
2) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
3) Connectez un oscilloscope à borne de test TP1 Enveloppe RF sur le circuits imprimés MAIN, tournez la vis d'ajustement de hauteur du guide de chargement afin d'obtenir une enveloppe plate et idéale comme dans Fig. 7-5.

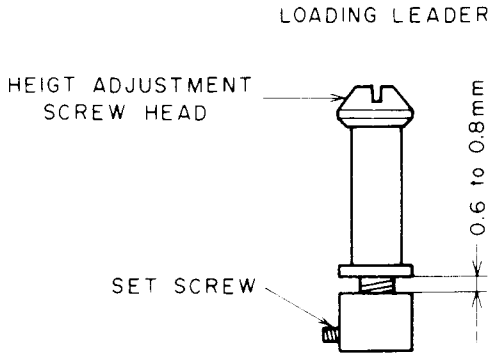


Fig. 7-4

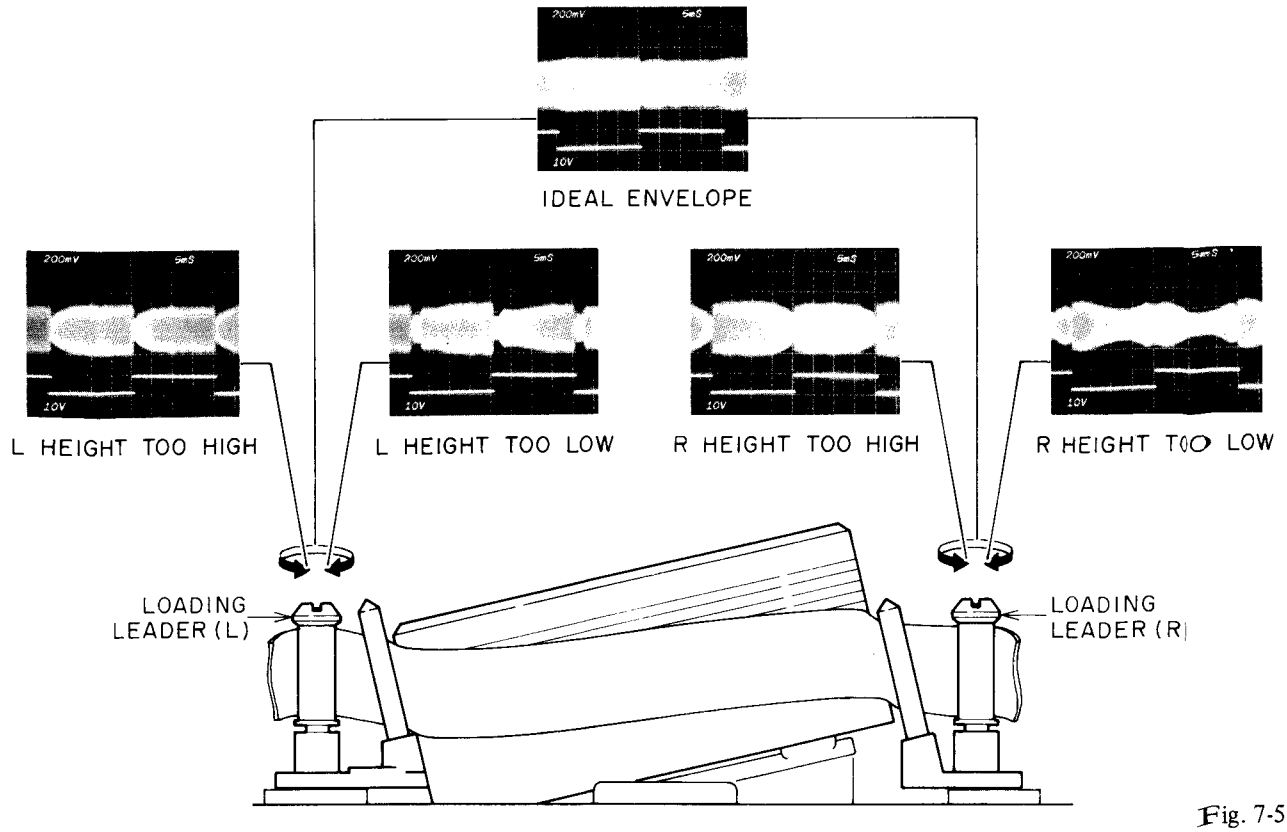


Fig. 7-5

7-3. TAPE CURL AT TAKE-UP TAPE GUIDE ADJUSTMENT

Turn the screw ⓐ on the A/C HEAD BLK so that the down edge of the tape touches the TAKE-UP TAPE GUIDE lower part without any curl or waving.

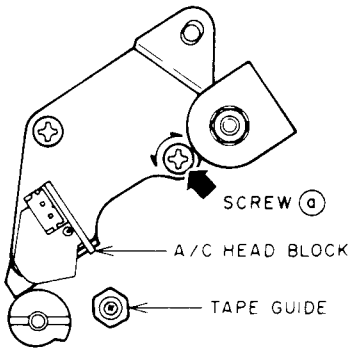


Fig. 7-6

7-3. REGLAGE ONDULATION DE LA BANDE SUR LE GUIDE RELEVER

Tournez la vis ⓐ sur le bloc de la tête A/C de facon que le bord inférieur de la bande touche la partie la plus basse du guide Relever sans ondulation.

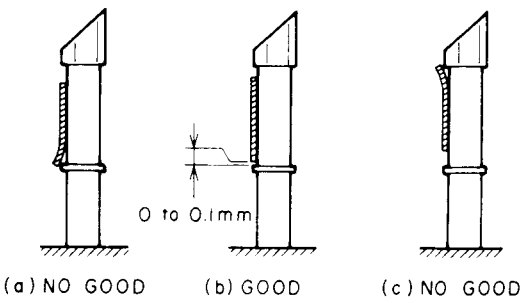


Fig. 7-7

7-4. AUDIO HEAD AZIMUTH ADJUSTMENT

1) Turn the NUT ⓐ for coarse A/C HEAD BLOCK height adjustment as in Fig. 7-8, 9.

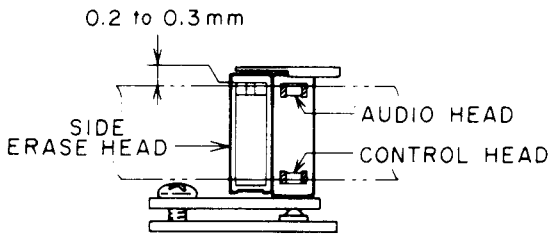


Fig. 7-8

2) Connect an oscilloscope or AC voltmeter to the AUDIO LINE OUT.
3) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
4) Turn the screw ⓑ to obtain the maximum audio signal output.

7-4. REGLAGE DE L'AZIMUTAGE DE LA TETE AUDIO

1) Tournez l'écrou ⓐ pour un réglage approximatif comme dans la Fig. 7-8, 9.

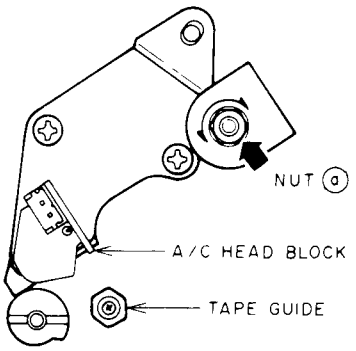


Fig. 7-9

2) Connectez un oscilloscope ou un voltmètre CA à la ligne de sortie AUDIO (AUDIO LINE OUT).
3) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
4) Tournez la vis ⓑ pour obtenir le signal de sortie audio maximum.

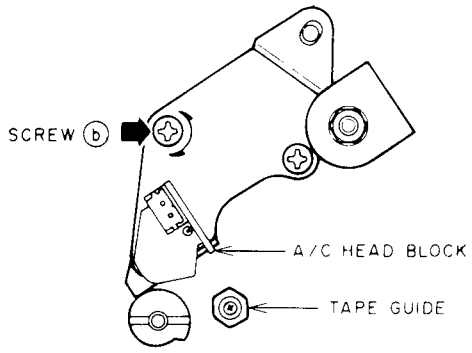


Fig. 7-10

7-5. RF ENVELOPE ADJUSTMENT

1) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
2) Slightly turn the LOADING LEADER HEIGHT ADJUSTMENT SCREW HEAD (L) (R) to obtain the IDEAL ENVELOPE as shown in Fig. 7-5.

7-6. TAPE CURL AT SUPPLY TAPE GUIDE ADJUSTMENT

1) Check the tape curl at Supply Tape Guide slightly turn the NUT ⓐ if the tape curl exists.

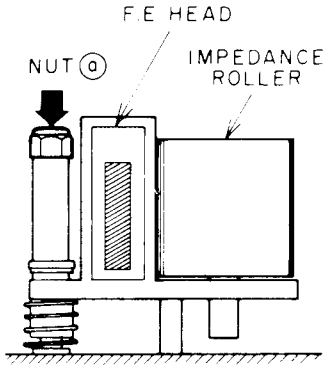


Fig. 7-11

7-7. AUDIO HEAD HEIGHT ADJUSTMENT

1) Connect an oscilloscope or AC Voltmeter to the LINE AUDIO OUT.
2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
3) Slightly turn the NUT ⓐ shown in Fig. 7-9 to obtain the maximum aduio output.

7-8. CONTROL HEAD POSITION ADJUSTMENT

1) Connect an oscilloscope to TP1 RF ENVELOPE Test terminal on the MAIN Board.
2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
3) Set the Tracking Control Volume to center click position.
4) Adjust Mechanical Tracking Adjustment Screw ⓐ to obtain the maximum RF ENVELOPE.

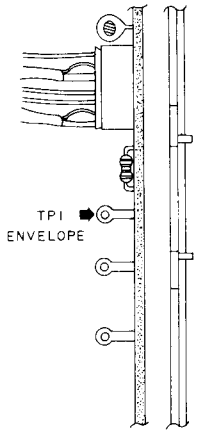


Fig. 7-13

7-5. REGLAGE ENVELOPPE RF

1) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
2) Tournez légèrement la vis de réglage de la hauteur du guide de chargement (LOADING LEADER HEIGHT ADJUSTMENT SCREW HEAD) (L) (gaughe) et (R) (droite) pour obtenir l'enveloppe idéale (IDEAL ENVELOPE) comme montré dans Fig. 7-5.

7-6. REGLAGE ONDULATION DE LA BANDE SUR LE GUIDE APPROVISIONNEMENT

Vérifiez si il y a ondulation de la bande au niveau du guide approvisionnement (SUPPLY TAPE GUIDE). tournez légèrement la l'écron ⓐ si il y a ondulation de la bande.

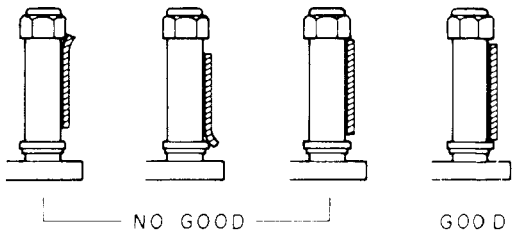


Fig. 7-12

7-7. REGLAGE DE LA HAUTEUR DE LA TETE AUDIO (AUDIO HEAD HEIGHT)

1) Connectez un oscilloscope ou un voltmètre CA à la sortie audio (AUDIO OUT).
2) Placez la cassette de référence T-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
3) Tournez légèrement l'écrou ⓐ pour obtenir la sortie audio maximum, comme comtré dans Fig. 7-9.

7-8. REGLAGE DE POSITION DE LA TETE DE CONTROLE

1) Connectez un oscilloscope au borne de test TP1 Enveloppe RF sur le circuits imprimés MAIN.
2) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
3) Réglez la commande d'alignement sur la position centrale à déclic.
4) Tournez l'alignement mécanique vis ⓐ pour obtenir l'enveloppe RF maximum.

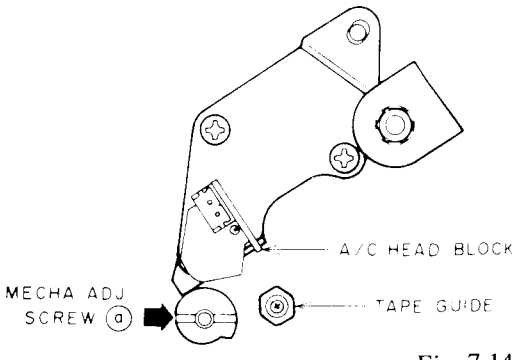


Fig. 7-14

7-9. CUE REVIEW ADJUSTMENT

1) Set a E-180 tape, press the PLAY and the F.FWD button (CUE mode).
2) Turn the CUE/REVIEW GUIDE height adjustment Nut Ⓒ so that the wrinkle between the PINCH ROLLER and the CUE/REVIEW GUIDE are not existed.
3) Depress the REV button (REVIEW mode) confirm the curl at the tape down edge is not existed at the TAPE GUIDE as shown in Fig. 7-7.
   (Fig. 7-7 (c) is not acceptable, but Fig. 7-7 (b) is acceptable).

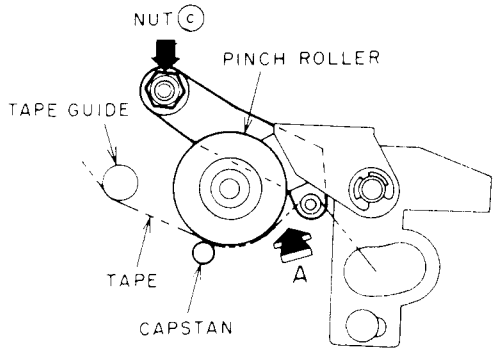


Fig. 7-15

After the adjustments, tighten the LOADING LEADER set screw.

7-9. REGLAGE DU DEFILEMENT DE LA BANDE EN MODEE RECHERCHE RAPIDE (CUE/REVIEW)

1) Placez une cassette E-180, appuyez lez touches lecture (PLAY) et avance rapide (F.FWD) (mode CUE).
2) Tournez l'ecrou Ⓒ de réglage de hauteur du guide CUE/REVIEW de facon que le plissement entre le galet presseur et le guide CUE/REVIEW soit inexistant.
3) Appuyez la touche rembobinage (mode REVIEW), vérifiez qu'il n'y a pas d'ondulation sur le bord inférieur de la bande au niveau du guide TU, comme montré dans Fig. 7-7.
   (Fig. 7-7 (c) n'est pas acceptable, mais la Fig. 7-7 (b) est acceptable.)

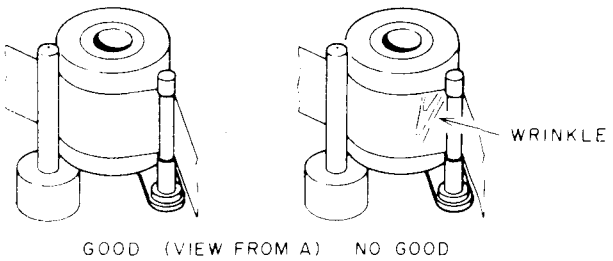


Fig. 7-16

Après les réglages décrits ci-dessus, resserrez la vis de réglage du guide de chargement.

VIII. HEAD DRUM REPLACEMENT

8-1. REPLACEMENT PROCEDURE

1) Remove the Drum Earth Brush.
2) Unsolder the four wires from the Rotary Trans, BLUE and BROWN for CH1, BLUE and RED for CH2.
3) Remove the Upper Drum Fixing Screw.
4) Install the Upper Drum. (Head Drum)
5) Tighten the Upper Drum Fixing Screws.
6) Resolder the four wires from the Rotary trans.

VIII. REMPLACEMENT DE TETE VIDEO

8-1. PROCEDURE DE REMPLACEMENT

1) Enlevez le balais de mise à la terre (EARTH BRUSH).
2) Dessoudez les quantres câbles du transformateur rotary, BLEU MARRON pour canal 1 (CH1) et BLEU ROUGE pour canal 2 (CH2).
3) Enlevez les vis de fixation du tambour supérieur.
4) Installez le tambour supérieur (Tête tambour).
5) Resserrez les vis de fixation du tambour supérieur.
6) Ressoudez les quatre câbles du transformateur rotary.

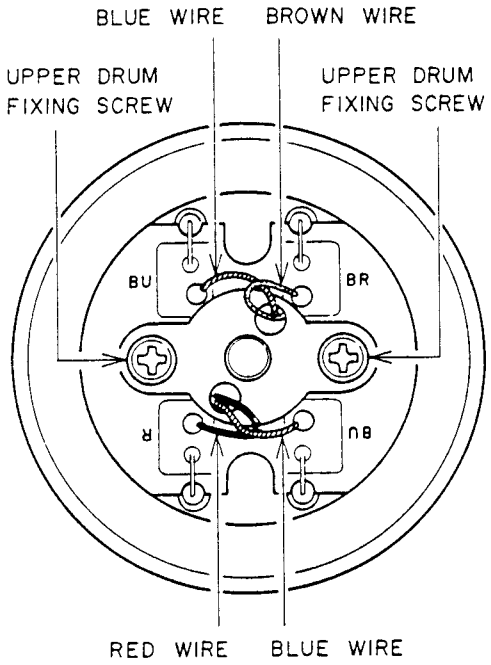


Fig. 8-1

NOTE: Height precisior is required for the proper performance, and the head tips are fragile, so the following points should be noted when replacing the upper drum block.

(a) Do not loosen the set screw on the collor pre-load.
(b) Before fixing, clean both surfaces where the upper drum and the rotary transformer part meet, with pure alcohol.
(c) When installation of upper drum, if it does not go on to the shaft easily, clean the hole in the upper drum with pure alcohol and put a little oil on the shaft.
(d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
(c) Tighten the two upper drum fixing screws alternately and gradually. Tighten them at 6 kg-cm torque.

REMARQUE:

La précision au niveau de la hauteur est requise pour obtenir de correctes performance, et les extrémités têtes sont fragiles, de ce fait les points suivants doivent être pris en considération lorsque vous replacez le bloc tambour supérieur.

(a) Ne desserrez pas l'ensemble de vis situé sur le collier de charge préalable.
(b) Avant toute fixation, nettoyez avec de l'alcool pur les surfaces oú le tambour supérieur et le transformateur rotary se joignent.
(c) Lors de l'installation du tambour supérieur, si il ne s'adapte pas aisément sur l'arbre, nettoyez l'orifice du tambour supérieur avec de l'alcool pur et huilez légèrement l'arbre.
(d) Assurez vous que les trous des vis de fixation du tambour supérieur sur le transformateur rotary et que les trous des vis de fixation du tambour supérieur s'adaptent exactement avant d'insérer les vis de fixation.
(e) Resserrez les deux vis de fixation du tambour supérieur alternativement et graduellement, Resserrez les en couple de 6 kg-cm.

8-2. AFTER REPLACEMENT

After replacement, the following adjustments and confirmations are necessary for the proper performance.

1) Tracking preset adjustment. (Servo adjustment Step 2)
2) PB switching point adjustment. (Servo adjustment Step 3)
3) REC current adjustment. (Video adjustment Step 1)

8-2. APRES REMPLACEMENT

Aprés remplacement les réglages et confirmations suivants sont nécessaires pour obtenir de correctes performances.

1) Réglage de préréglage d'alignement (Réglage SERVO étape 2).
2) Réglage du point de commutation de la reproduction (Réglage SERVO étape 3).
3) Réglage courant d'enregistrement (Réglage VIDEO étape 1).

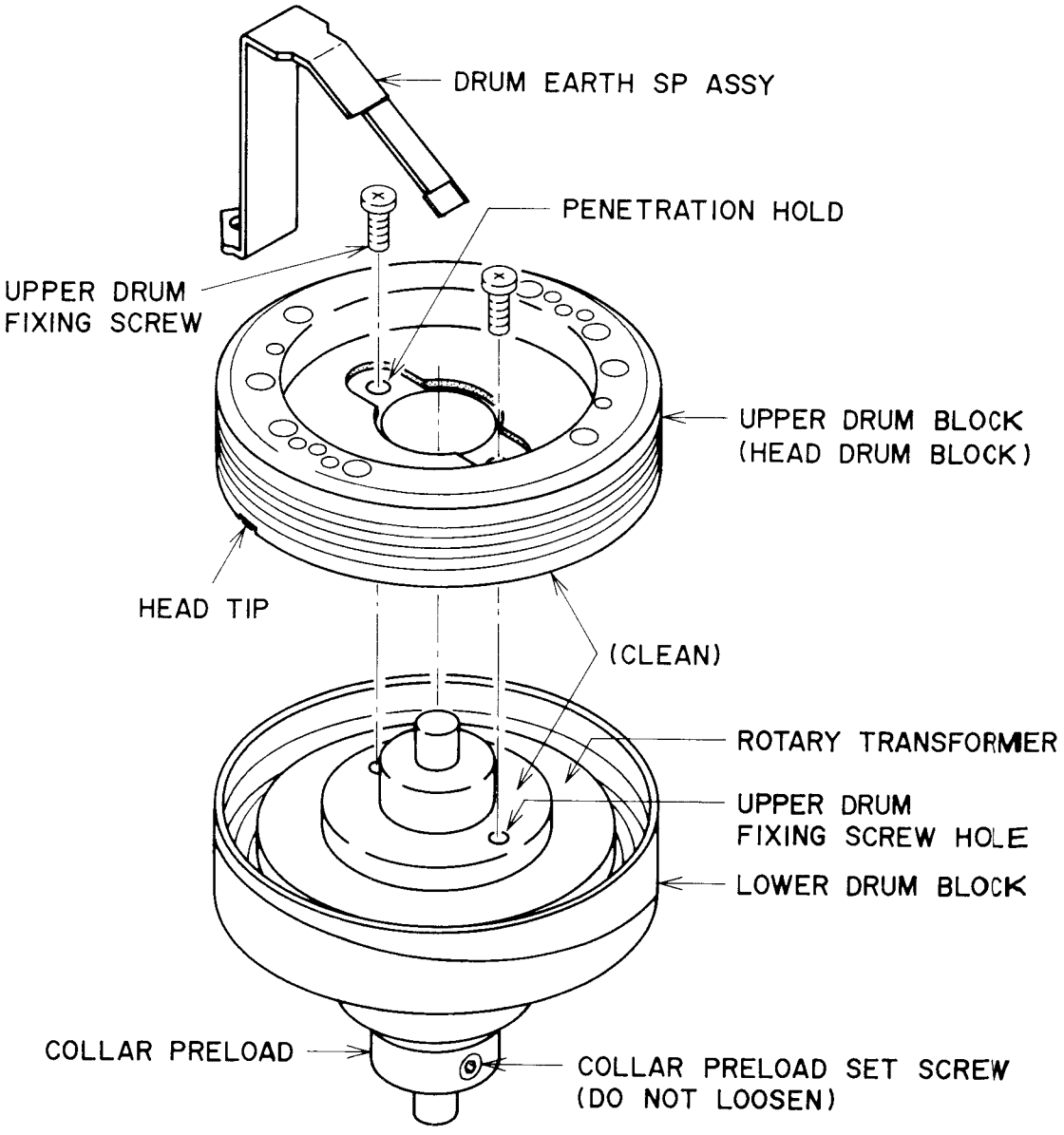


Fig.8-2

IX. HOW TO MOUNT THE ROTARY PLATE

When mounting the rotary plate on the drum motor, be sure to align the mark (Small round hole) on the rotary plate (a) with the collar preload set screw (d) on the collar preload (c) as illustrated above.

NOTE: Do not attempt to remove the collar preload (c) on the head assy. If removed, a special jig is needed for reinstallation, which almost always requires replacement of the drum assy.

IX. COMMENT MONTER LA PLAQUE ROTATIVE

Lors de la mise en place de la plaque rotative sur le moteur à tambour, assurez-vous d'aligner le repère (petit orifice rond) situé sur la plaque rotative (a) avec la vis de réglage (d) du collier de préchargement située sur le colier de préchargement (c) comme il est indiqué ci-dessous.

REMARQUE: N'essayez pas de démonter le collier de préchargement (c) de l'assemblage de la tête. Si ce collier est enlevé, un gabarit spécial est nécessaire pour remettre le collier de préchargement en place, ce qui nécessite la plupart du temps le remplacement de l'assemblage du tambour.

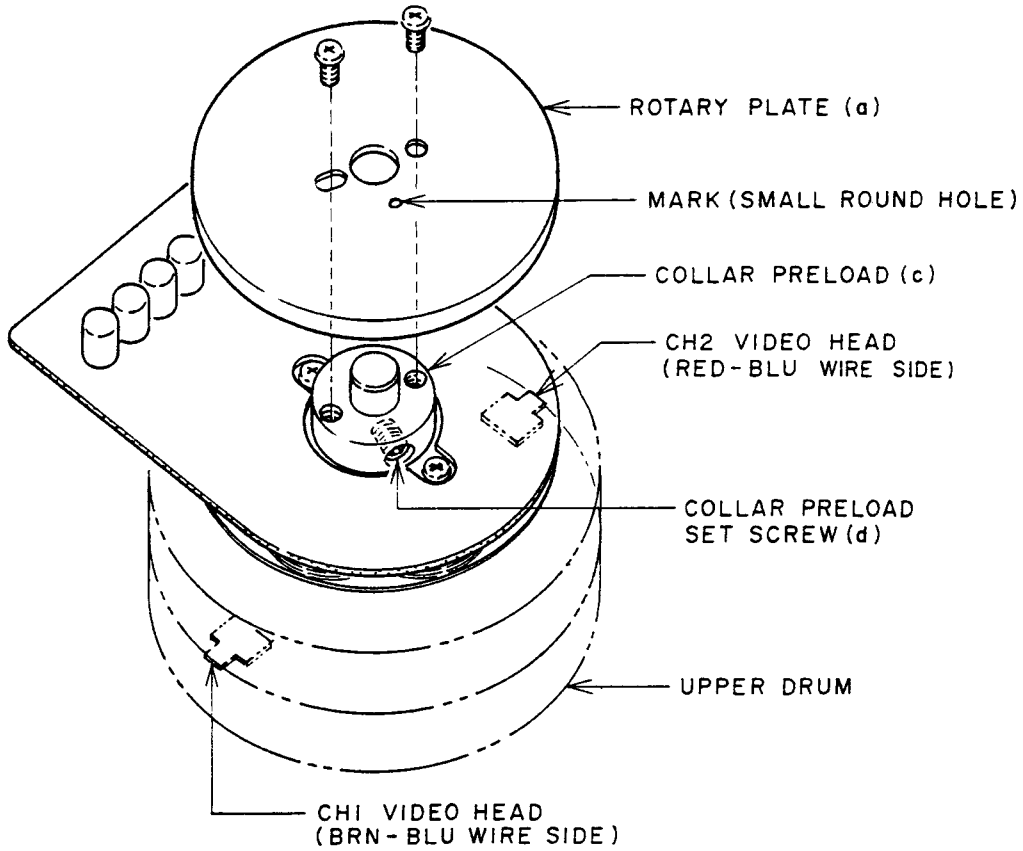


Fig. 9-1

X. HOW TO ASSEMBLE LOADING MECHANISM

1) With the unit unloaded, attach Gear Loading (S) BLK and Gear Loading (T) BLK to Mecha chassis so that align the mark.

X. COMMENT ASSEMBLER LE MECANISME DE CHARGEMENT

1) L'unité étant en mode de déchargement, fixez le bloc d'engrenage de chargement (S) et le bloc d'engrenage de chargement (T) sur le chassis mécanique de façon à ce que les repères soient alignés.

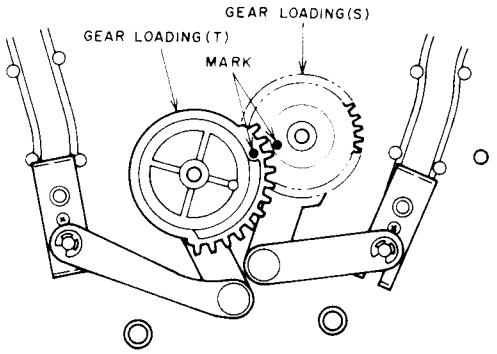


Fig. 10-1

2) Attach Gear Cam Eject to Mecha chassis so that align the marks.

2) Fixez la camme d'engrenage d'éjection sur le chassis mécanique de façon à ce que les repères soient alignés.

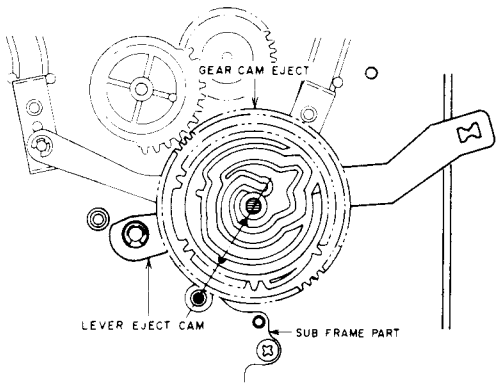


Fig. 10-2

3) Attach Gear Cam Main to Mecha chassis so that Pin Ⓐ of Lever P Cam and Pin Ⓑ of Lever Cam Slide mate oval hole of Gear Cam Main.

3) Fixez la camme d'engrenage principale au chassis mécanique de façon à ce que la broche Ⓐ de la camme P du levier et la broche Ⓑ de la camme de glissement du levier soient situées dans l'orifice ovale de la camme d'engrenage principale.

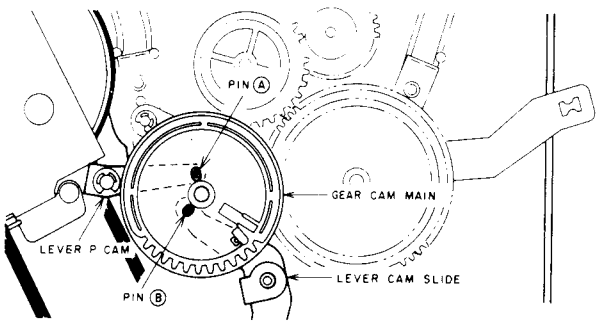


Fig. 10-3

4) Attach Lever Cam Tension to Mecha chassis so that Pin Ⓐ goes into valley of Gear Cam Eject.
5) Attach Lever Cam F/R to Mecha chassis so that Pin Ⓑ goes into valley of Gear Cam Eject. and Pin Ⓒ of Plate F/R Slide (2) Part into hole of lever Cam F/R.

4) Fixez la camme de tension du levier sur le chassis mécanique de façon à ce que la broche Ⓐ soit placée dans la cornière de la camme d'engrenage de l'éjection.
5) Fixez la camme F/R du levier sur le chassis mécanique de façon à ce que la broche Ⓑ soit placée dans la cornière de la camme d'engrenage de l'éjection et que la broche Ⓒ de la pièce (2) de glissement de la plaque F/R soit placée dans l'orifice de la camme F/R du levier.

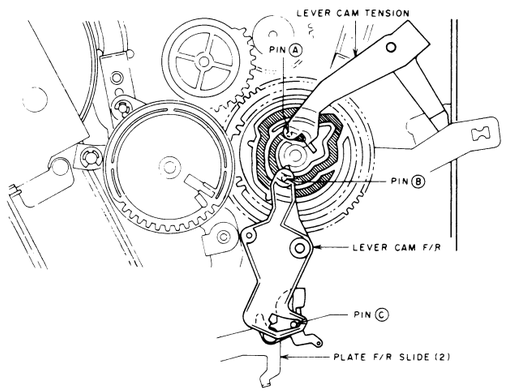


Fig. 10-4

6) Attach Arm Set Free onto Lever Cam Slide.

6) Fixez le dispositif de déverrouillage du bras à la camme de glissement du levier.

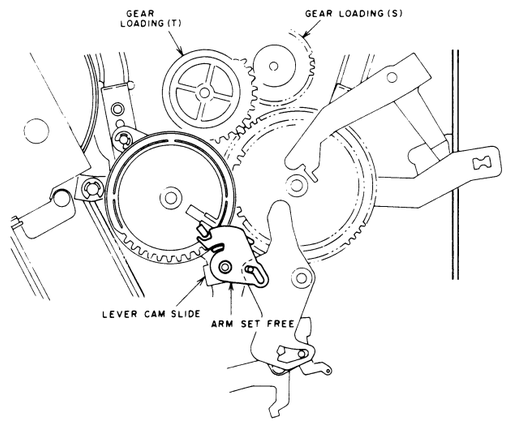


Fig. 10-5

7) Attach Mode SW BLK to Mecha chassis so that the latch of Rotary Encoder goes into slit Ⓐ of Gear Cam Main and tighten with screw Ⓑ.

7) Fixez le bloc de commutation de mode (SW BLK) sur le chassis mécanique de façon à ce que le verrou de l'encodeur rotatif soit situé dans l'encoche Ⓐ de la camme d'engrenage principale et fixez l'ensemble avec la vis Ⓑ.

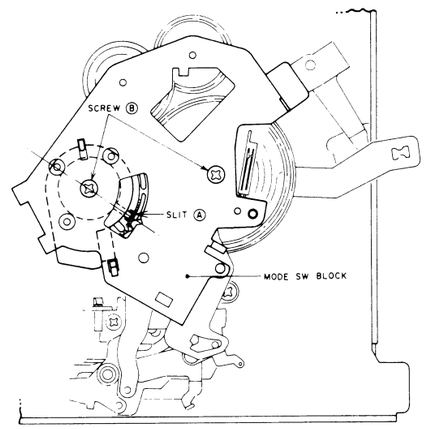


Fig. 10-6

8) Mount Loading Motor BLK and tighten with screw Ⓐ

8) Montez le bloc du moteur de chargement et fixes le avec la vis Ⓐ.

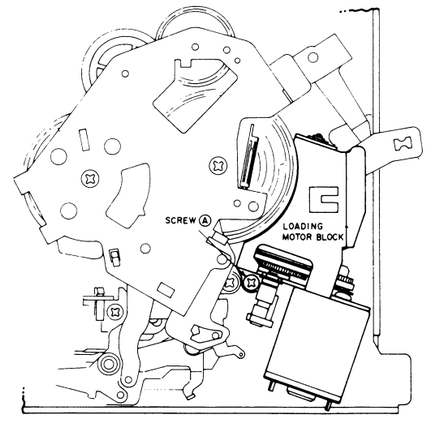


Fig. 10-7

XI. ELECTRICAL ADJUSTMENT

11-1. MAIN PCB ADJUSTMENTS

Precautionary items prior to adjustments.

1. The color bar generator output should be 1.0 Vp-p.
2. Video output terminal should be terminated with 75 ohms (dummy or load).

Required following Test tapes.

Test Tape	Part No.
TF-530RFS	AT-751775
TF-527BL	AT-711880
TF-512CB	AT-750779

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ. part
3.	RESULT & REMARKS

ADJ. part →
Test point →

AUDIO ADJUSTMENT

3 AUDIO AZIMUTH

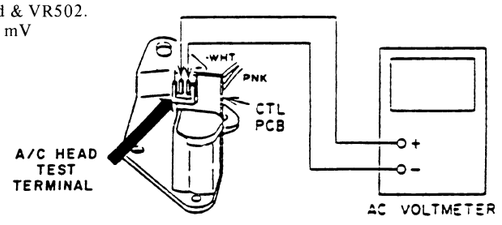
1. "PB" Test tape TF-530RFS.
2. AUDIO OUT.
3. Confirm −6 ~ −14 dBm. (TF-508RF: −5 ~ −11 dBm)

1 AUDIO PB LEVEL

1. "PB" Test tape TF-527BL.
2. Audio out & VR501.
3. −3.0 ± 0.5 dBm (TF-513L: −9.0 ± 0.5 dBm)

2 REC CURRENT

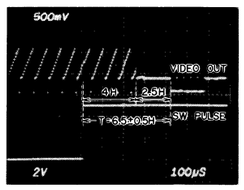
1. "REC" (1 kHz, −8dBm)
2. Test terminal on the A/C Head & VR502.
3. 2.9 ± 0.1 mV



SERVO ADJUSTMENT

3 PB SWITCHING POINT

1. "PB" Test tape TF-530RFS.
2. TP-Video out, P204 pin 1 (SW.P) for trigger signal & VR201.
3. Adjust "T" to 6.5 ± 0.5H

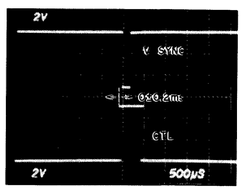


1 IDL 5V

1. "E-E" (stop mode)
2. TP4 (IDL 5V) & VR301
3. 5.1 ± 0.05 V

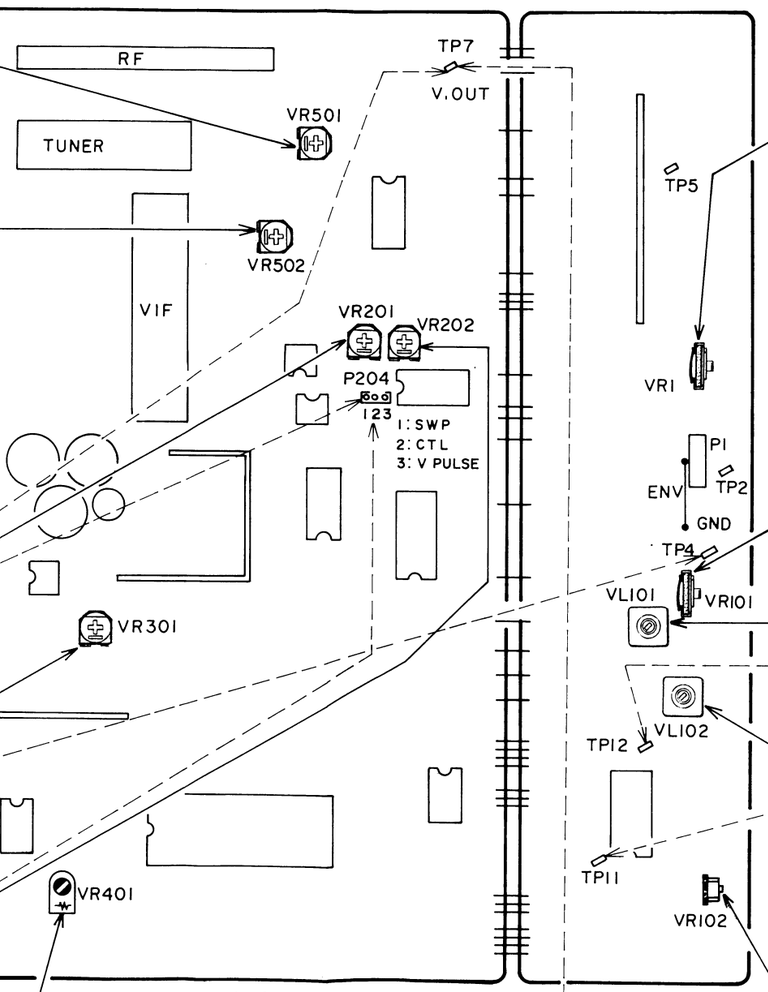
2 TRACKING PRESET

1. "PB" Test tape TF-530RFS.
2. Test terminal P204 pin 2 (CTL), pin 3 (V-SYNC) & VR202.
3. • Set the TRACKING Control to center click position.
   • Adjust VR202 so that the phase at raising part of CTL pulse and V-SYNC pulse are lined up.



4 VERTICAL STABILITY

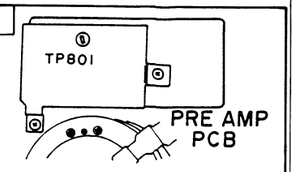
1. "REC" TV program and PB/PAUSE
2. TV screen & VR401
3. Minimum vibration of still picture.

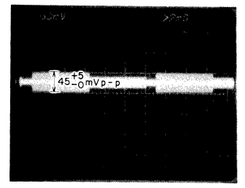


VIDEO ADJUSTMENT

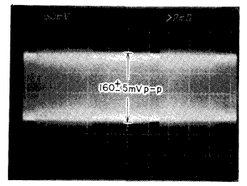
4 REC CURRENT

1. "REC" SECAM color bar signal.
2. TP801 on the PRE-AMP PCB & VR101 (C), VR1 (Y).
3. • Turn VR1 (Y) fully clockwise.





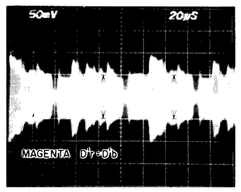
• Adjust VR101 so that Chroma REC current level is 45^{+5}_{-0} mVp-p.



• Adjust VR1 so that Y REC current level is 160 ± 5 mVp-p.

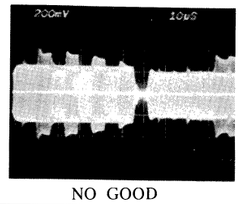
2 EQUALIZER LEVEL

1. "REC" SECAM color bar signal.
2. TP12 & VL101
3. Adjust VL101 so that D'r and D'b becomes same level as shown.

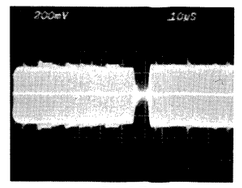


3 BELL FILTER

1. "REC" SECAM color bar signal.
2. TP11 & VL102
3. Adjust VL102 so that waveform become flat as shown.



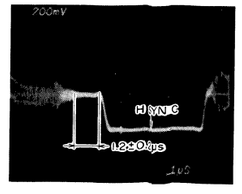
NO GOOD



GOOD

1 CHROMA NOISE GATE

1. "PB" Test tape TF-512CB.
2. TP7 Video out & VR102
3. Adjust VR102 so that noise gate pulse position is 1.2 ± 0.2 µs from H.SYNC signal as shown.



XI. REGLAGES ELECTRIQUES

11-1. REGLAGE DE CIRCUITS IMPRIMÉS MAIN

Précautions à prendre avant d'effectuer les réglages.
1. La sortie du générateur de barres couleurs doit être de 1.0 Vp-p.
2. La borne de sortie vidéo être bouclée à 75 ohms (fictif ou charge réelle)

Les bondes d'essai suivantes sont reguises.

Bande d'Essai	Nombre Partie
TF-512CB	AT-750779
TF-527BL	AT-711880
TF-530RFS	AT-751775

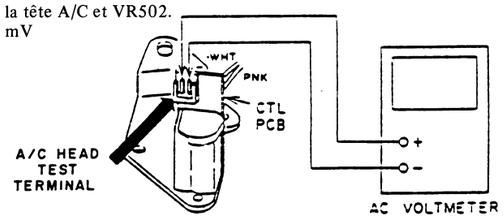
DIS-POSITION	POINT DE RÉGLAGE
1. Mode et signal d'entree ou bande d'essai. 2. Point d'essai et pieces de réglage. 3. Résultants et Remarques.	à pieces de réglage à point d'essai

REGLAGE AUDIO

3 AZIMUTAGE TÉTE
1. "LECTURE"/TF-530RFS Bande d'essai.
2. Sortie Audio
3. Confirm −6 ~ −14 dBm

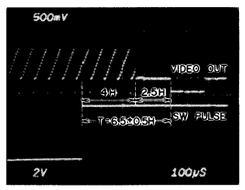
1 NIVEAU DE LECTURE
1. "LECTURE"/TF-527BL Bande d'essai.
2. Sortie Audio et VR501.
3. −3.0 ± 0.5 dBm.

2 COURANT DE PRÉMAGNETISATION
1. "ENRG." (Entree audio 1 kHz, −8dBm).
2. Borne de la tête A/C et VR502.
3. 2.9 ± 0.1 mV



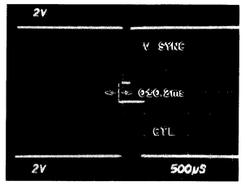
REGLAGE D'ASSERVISSEMTN

3 POINT DE COMMUTATION LECTURE
1. "LECTURE"/TF530RFS Bande d'essai.
2. P204 ① (pouls commutation), sortie video et VR201.
3. Réglez "T" avec VR201 sur 6.5 ± 0.5H.

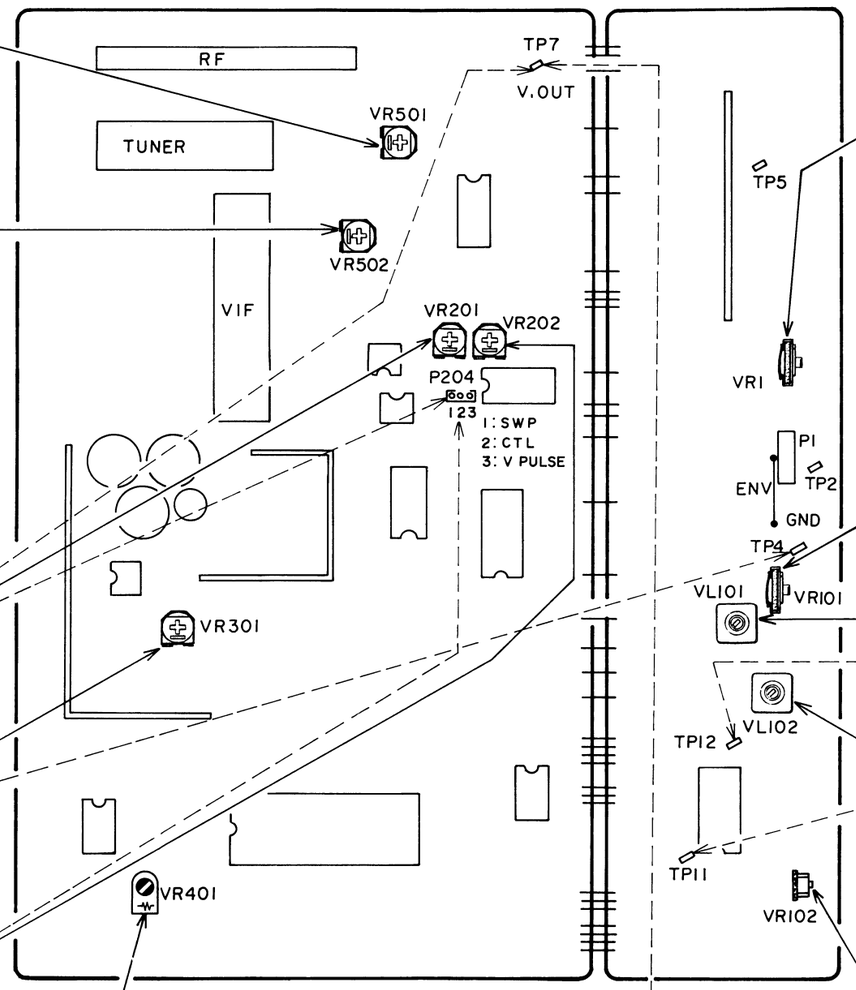


1 IDL 5V
1. "E-E" (STOP)
2. TP4 (IDL 5V) et VR301
3. 5.1 ± 0.05V

2 PRÉRÉGLAGE DE L'ALIGNEMENT
1. "LECTURE"/TF-530RFS Bande d'essai.
2. P204 ③ (Sync. V), ② (CTL) et VR202.
3. • Réglez la commande d'alignement sur la position centrale à déclic.
   • Réglez VR202 de façon à ce que la phase au point d'elevation de l'impulsion de commande et l'impulsion du sync vertical de soient alignées.

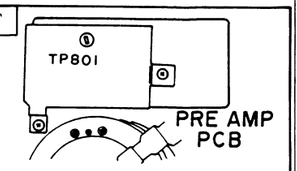


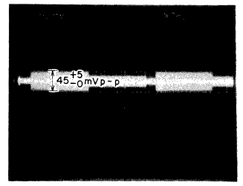
4 STABILITÉ VERTICAL
1. "ENRG." (program TV) → LECTURE/PAUSE.
2. Moniteur TV et VR401.
3. Appuyez sur la touché de pause et réglez les barres parasites de l'image fixe avec VR401 jusqu'a ce que les parasites de l'image fixe solent reduits.



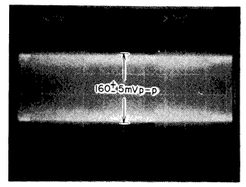
REGLAGE VIDEO

4 COURANT D'ENREGISTREMENT
1. "ENRG." (Barres couleurs SECAM).
2. TP801 (PREAMP) et VR101 (chroma), VR1 (Y).
3. • Tournez VR1 complément dans le sens contraire des aiguilles d'une montre (Y-zéro).



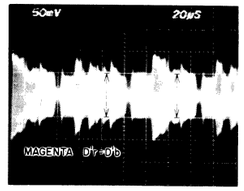


• Réglez VR101 de façon à ce que la forme d'onde d'enregistrement chroma soit de 45 $^{+5}_{-0}$ mVp-p.

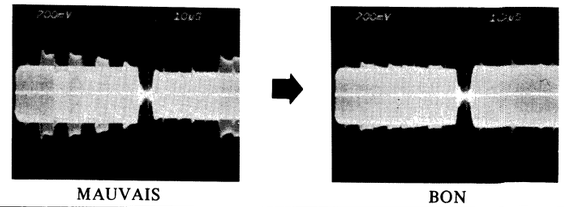


• Réglez VR1 de façon à ce que la forme d'onde du courant d'enregistrement du signal (Y) soit de 160 ± 5 mVp-p.

2 EGALISATION DE L'ENREGISTREMENT
1. "ENRG." (Barres couleurs SECAM).
2. TP12 et VL101
3. Réglez VL101 de façon ce que D'$_R$ D'$_B$ soient au même niveau.

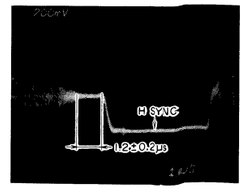


3 FILTRE CLOCHE
1. "ENRG." (Barres couleurs SECAM)
2. TP11 et VL102
3. Réglez VL102 de façon à ce que la forme d'onde soit la plus possible.



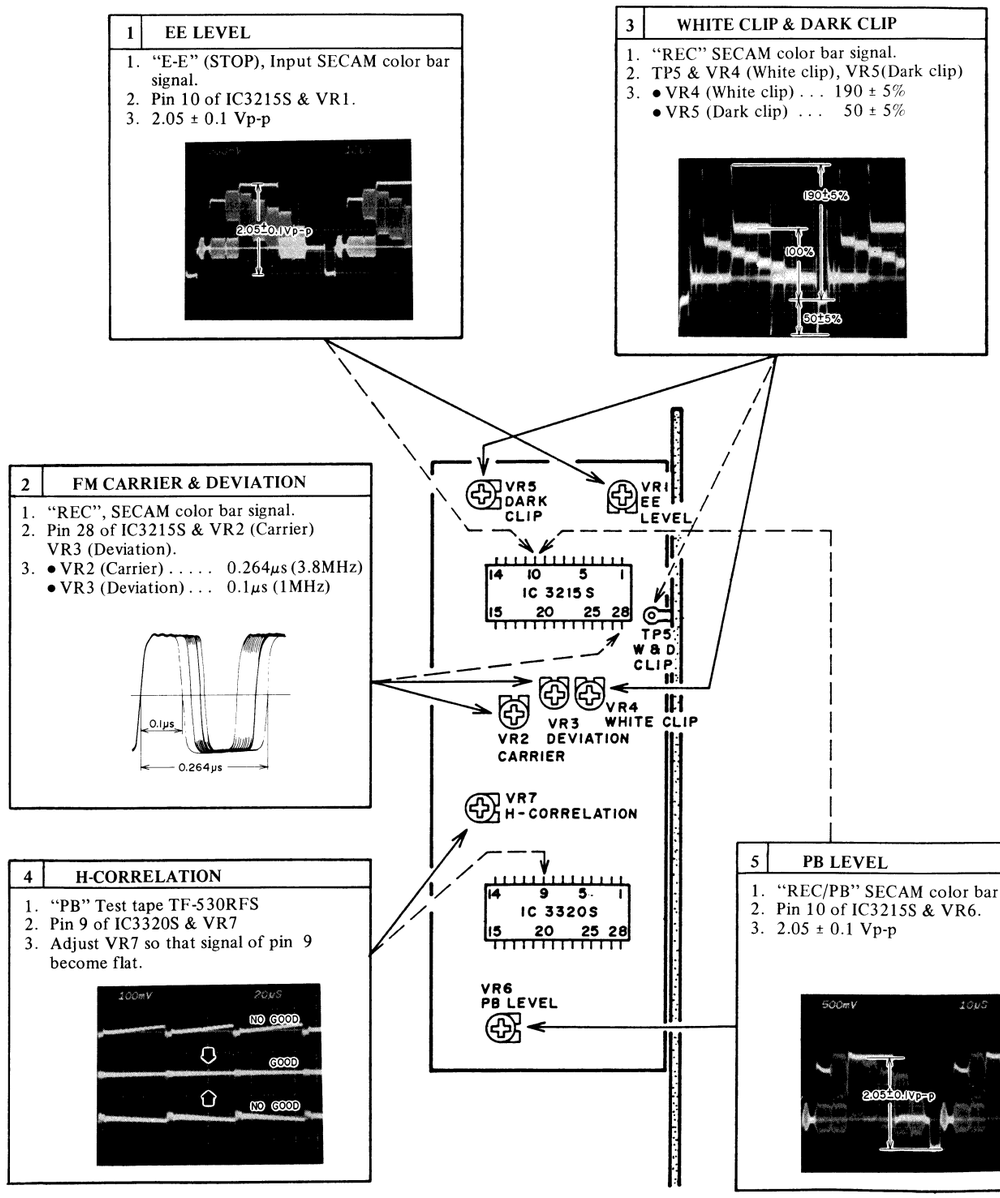
MAUVAIS BON

1 POSITION D'IMPULSION DE PORTE DU BRUIT
1. "LECTURE"/TF-512CB Bande d'essai.
2. TP7 sortie video et VR102.
3. Réglez VR102 de façon à ce que la position d'impulsion soit de 1.2 ± 0.2 μs par rapport au signal de sync Horizontal.



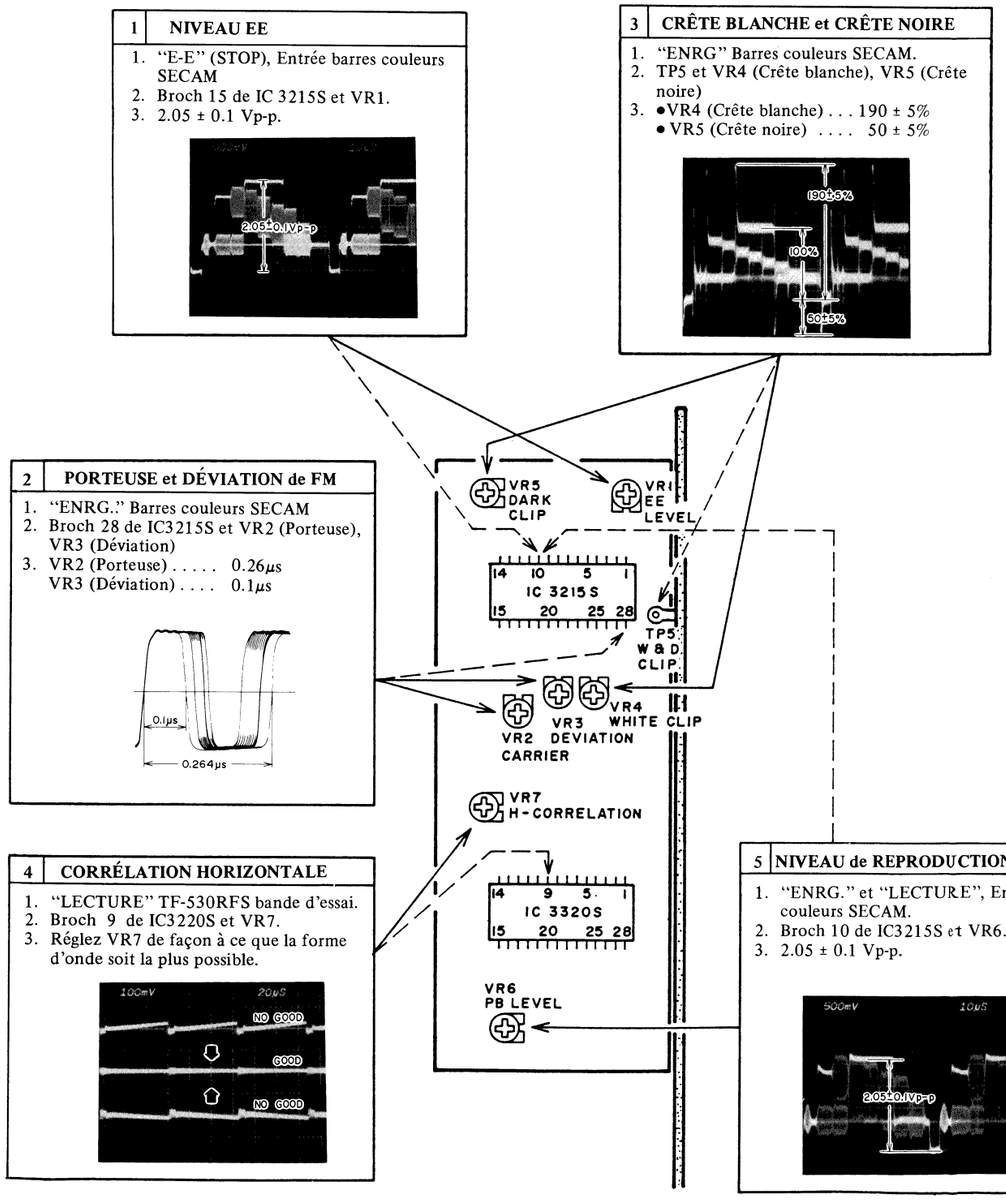
11-2. LUMINANCE SIGNAL PROCESSING IC (HH3210P) ADJUSTMENTS

NOTE: These adjustment's are generally unnecessary, except when replacing this IC.


1 EE LEVEL
1. "E-E" (STOP), Input SECAM color bar signal.
2. Pin 10 of IC3215S & VR1.
3. 2.05 ± 0.1 Vp-p
2.05±0.1Vp-p
3 WHITE CLIP & DARK CLIP
1. "REC" SECAM color bar signal.
2. TP5 & VR4 (White clip), VR5(Dark clip)
3. • VR4 (White clip) . . . 190 ± 5%
• VR5 (Dark clip) . . . 50 ± 5%
190±5%
100%
50±5%
2 FM CARRIER & DEVIATION
1. "REC", SECAM color bar signal.
2. Pin 28 of IC3215S & VR2 (Carrier) VR3 (Deviation).
3. • VR2 (Carrier) 0.264μs (3.8MHz)
• VR3 (Deviation) . . . 0.1μs (1MHz)
0.1μs
0.264μs
VR5 DARK CLIP
VR1 EE LEVEL
14 10 5 1
IC 3215S
15 20 25 28
TP5 W & D CLIP
VR3 DEVIATION
VR4 WHITE CLIP
VR2 CARRIER
VR7 H-CORRELATION
14 9 5 1
IC 3320S
15 20 25 28
VR6 PB LEVEL
4 H-CORRELATION
1. "PB" Test tape TF-530RFS
2. Pin 9 of IC3320S & VR7
3. Adjust VR7 so that signal of pin 9 become flat.
100mV
20μS
NO GOOD
GOOD
NO GOOD
5 PB LEVEL
1. "REC/PB" SECAM color bar signal.
2. Pin 10 of IC3215S & VR6.
3. 2.05 ± 0.1 Vp-p
500mV
10μS
2.05±0.1Vp-p

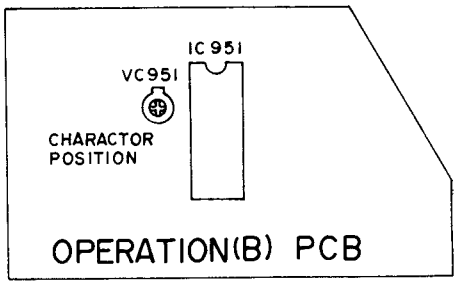
11-2. REGLAGE DU CIRCUIT INTÉGRÉ (HH3210P) DU TRAITEMENT DE SIGNAUX DE LUMINANCE (Y)

NOTE: En général, ces a ustages ne sont pas nécessaires, à l'exception du remplacement de circuit intégré.


1 NIVEAU EE
1. "E-E" (STOP), Entrée barres couleurs SECAM
2. Broch 15 de IC 3215S et VR1.
3. 2.05 ± 0.1 Vp-p.
2.05±0.1Vp-p
3 CRÊTE BLANCHE et CRÊTE NOIRE
1. "ENRG" Barres couleurs SECAM.
2. TP5 et VR4 (Crête blanche), VR5 (Crête noire)
3. •VR4 (Crête blanche) . . . 190 ± 5%
• VR5 (Crête noire) . . . . 50 ± 5%
190±5%
100%
50±5%
2 PORTEUSE et DÉVIATION de FM
1. "ENRG.." Barres couleurs SECAM
2. Broch 28 de IC3215S et VR2 (Porteuse), VR3 (Déviation)
3. VR2 (Porteuse) 0.26μs
VR3 (Déviation) 0.1μs
0.1μs
0.264μs
VR5 DARK CLIP
VR1 EE LEVEL
14 10 5 1
IC 3215S
15 20 25 28
TP5 W & D CLIP
VR3 DEVIATION
VR4 WHITE CLIP
VR2 CARRIER
VR7 H-CORRELATION
14 9 5 1
IC 3320S
15 20 25 28
VR6 PB LEVEL
4 CORRÉLATION HORIZONTALE
1. "LECTURE" TF-530RFS bande d'essai.
2. Broch 9 de IC3220S et VR7.
3. Réglez VR7 de façon à ce que la forme d'onde soit la plus possible.
100mV
20μS
NO GOOD
GOOD
NO GOOD
5 NIVEAU de REPRODUCTION (LECTURE)
1. "ENRG." et "LECTURE", Entrée barres couleurs SECAM.
2. Broch 10 de IC3215S et VR6.
3. 2.05 ± 0.1 Vp-p.
500mV
10μS
2.05±0.1Vp-p

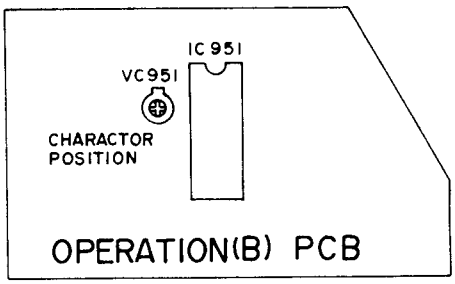
11-3. IMS (DISPLAY) POSITION ADJUSTMENT

1. "E-E (Stop model)
2. TV screen & VC951
3. • Depress the PROGRAM button on the REMOTE CONTROL unit.
   • Adjust VC951 so that characters located center of the TV screen.



11-3. RÉGLAGE DE IMS (AFFICHAGE)

1. "E-E" (STOP)
2. Ecran de télévision et VC951.
3. • S'appuyer sur le poussoir de programme sur l'ensemble de commande à distance.
   • Ajuster le VC951 pour que les caractères se trouvent au milieu de l'écran de télévision.



XII. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

- ZG: SP (Service Parts) Classification
- 2-1x: A small "x" indicates that this part is not shown in the Photo or Illustration.
- 2-5: This number corresponds with the individual parts index number in that figure.
- 2-1x: This number corresponds with the Figure Number.

b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

- [C,A]: Symbols for primary destination
  - [A]: AAL(U.S.A.) [S]: SAA(Australia)
  - [B]: BEAB(England) [U]: U/T(Universal Area)
  - [C]: CSA(Canada) [V]: VDE(W. Germany)
  - [E]: CEE(Europe) [Y]: Custom Version
  - [J]: JPN(Japan)
- EI: SP (Service Parts) Classification
- 6-X1: These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

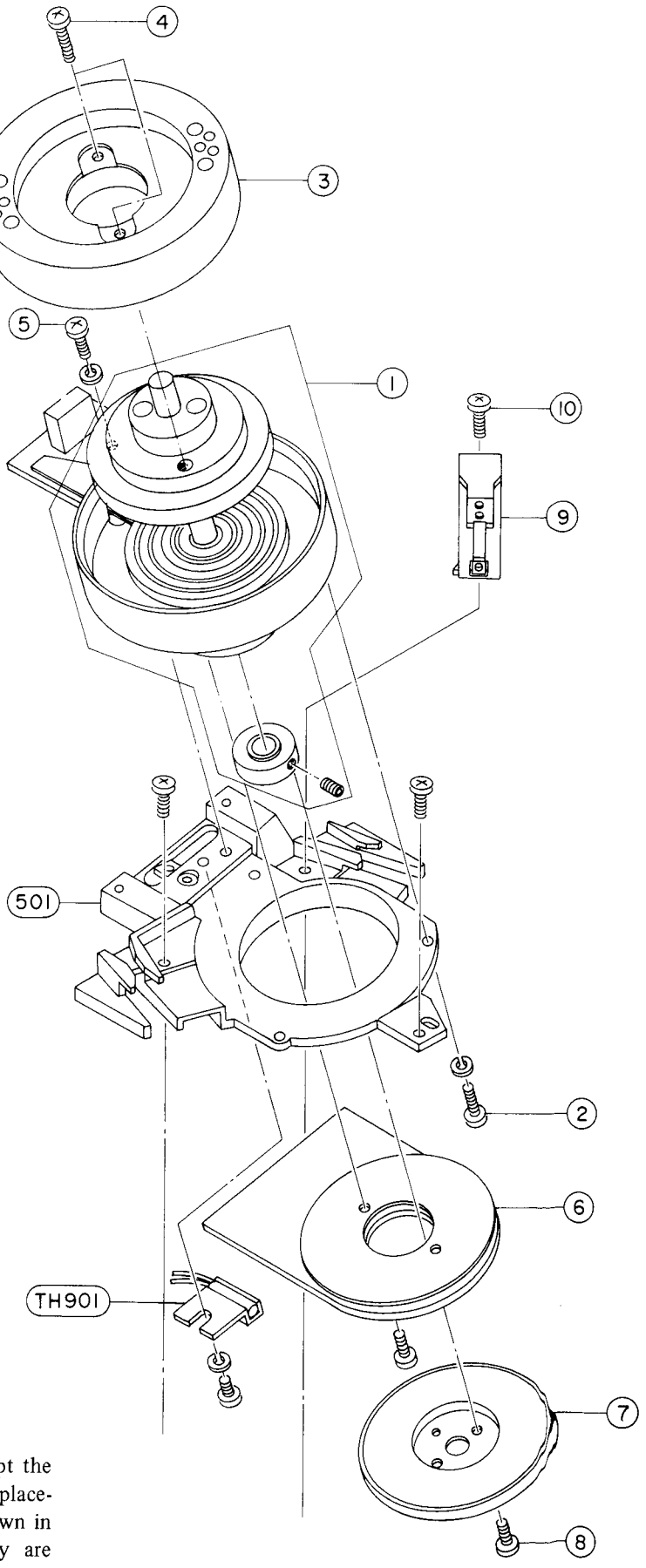
⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	BF-B360531-B	FLYWHEEL CAPSTAN PART
2	BL-B360350	ARM TENSION BAND PART
3	BM-B361467	LOADING MOTOR PART
4	BM-361544-B	MOTOR FG KCX-38FS5B
5	BM-M3224A020A	PC MOTOR BLK SM-240
6	BR-B365716-B	SUPPLY REEL TABLE PART 2
7	BR-B365715-B	TAKE-UP REEL TABLE PART 2
8	BT-371709	TRANS POW V69S-EO
9	BV-V1047A090A	LOADING LEADER(L) BLK VS-112EG
10	BV-V1047A080A	LOADING LEADER(R) BLK VS-112EG
11	BV-V1030A210E	LOWER DRUM BLK VS-220U
12	BV-371163	RF CONV/BOOSTER MDLC3F553X S
13	BV-372182	RF CONVERTOR SW*V1070SK
14	BV-V1030A220F	UPPER DRUM BLK VS-303S
15	BV-V1048A900A	VIF BLK VS-112S
16	BV-V1070A900A	VIF BLK VS-240SK
17	ED-356424	D LED BG5525S GREEN
18	ED-357540	D LED LN59
19	ED-355607	D LED PR5505S RED
20	ED-705414	D LED SE303A INFRARED
21	ED-360409	D PHOTO PN323B
22	ED-371398	D SILICON DSA17-FB8 F12
23	ED-371397	D SILICON DSF10T-FA6 F10
24	ED-344280	D SILICON H GMA-01-FY2 F05
25	ED-307572	D SILICON H 1SS131
26	ED-624903	D SILICON H 1S2473
27	ED-367202	D SILICON S5566B F12
28	ED-364034	D ZENER H HZS8.2J B1 F05
29	ED-361915	D ZENER H HZS8.2J B3 F05
30	ED-370786	D ZENER H HZS9.1J B2 F05
31	ED-362998	D ZENER H HZS9.1J B3 F05
32	ED-346622	D ZENER H HZ30 1
33	ED-346597	D ZENER H HZ4 B1
34	ED-337292	D ZENER H HZ5 B1
35	ED-309069	D ZENER H HZ6 B2
36	ED-337266	D ZENER H HZ9 A1
37	EE-337173-A	TV TUNER TEEF1-008A
38	EE-365749	TV TUNER TEMZ1-0008A SK
39	*EF-344106	FUSE ICP-N10 50V 0.4A
40	*EF-623103	FUSE SEMKO T 250V 1.00A
41	*EF-258344	FUSE SEMKO T 250V 800MA
42	EH-360340-A	DL EFD-EN645A31P
43	EH-360339	FILTER LC AP AF-25P
44	EH-367043	FILTER LC BP H289BNKN-7235LHD
45	EH-364067	FILTER LC BP H297BAIN-5969DCD
46	EH-364069	FILTER LC LP H289LNJN-6231LRD
47	EH-364066	FILTER LC LP H322LWQ-1166MAD
48	EI-360561	IC AN3792
49	EI-360563	IC AN3794
50	EI-358853	IC BA235
51	EI-360648	IC BA5115
52	EI-353421	IC BA6229
53	EI-372243	IC BA7107S
54	EI-352714	IC HA11752
55	EI-328593	IC HD14053BP
56	EI-371023-A	IC HH3201P
57	EI-371683	IC MBM2212-25P-G
58	EI-361554	IC MB88301A-P
59	EI-366681	IC MB88521-140M
60	EI-373193	IC MB88551-256N
61	EI-360560	IC MN6178XAL
62	EI-373171	IC M51321P
63	EI-346071	IC M5218L-21
64	EI-360565	IC M5223P
65	EI-356811	IC M5224P
66	EI-347769	IC M54514AP
67	EI-360564	IC M54548L
68	EI-360396	IC S-8054HN
69	EI-363347	IC TC9018P
70	EI-367271	IC UPC1490HA
71	EI-358506	IC UPC1513HA
72	EI-337530	IC UPC574J
73	EI-714630	IC UPD6102G
74	EI-367407	IC UPD6105C-002
75	EI-347991	OSC CE CSA6.00MS 6MHZ
76	EI-720002	OSC CE CSB455P 455KHZ
77	EI-356371	OSC X'TAL MS-309 4.194304MHZ
78	EI-309878	OSC X'TAL 4.433619MHZ
79	EM-366754	IND LE LB-402MB4
80	*ER-360559	R FUSE H F12 RF50S 1/2W 1R0J
81	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
82	*ER-348272	R FUSE H S10 ERD2FC 1/4W 12R0G
83	*ER-362256	R FUSE H S10 ERQ14LE 1/4W R47K
84	*ER-372129	R FUSE H S10 ERQ14LE 1/4W 2R2K
85	*ER-362257	R FUSE H S17 ERQ-12H 1/2W R47K
86	*ER-371796	R FUSE H S17 ERQ-12H 1/2W 1R0J
87	ES-360433	SW LEAF MRX
88	ES-361479	SW LEAF MSW-1594C
89	ES-353622-A	SW PUSH EVQ-WU7001 02-2
90	ES-366697	SW SLIDE ESD-14137A 1-01-03N
91	ES-364906	SW SLIDE HSW0789-01-800
92	ES-371027	SW SLIDE HSW0847-01-010 1-2
93	ES-369603	SW SLIDE HSW0896-010 2-02-02N
94	ES-349474	SW TACT SKHHAM004A
95	ET-361463	DETECTOR ON2170 Q,R
96	ET-370634	TR DTA143XS
97	ET-354415	TR DTA144ES
98	ET-353897	TR DTC114ES
99	ET-360399	TR DTC114TS
100	ET-364060	TR DTC143ES
101	ET-354414	TR DTC144ES
102	ET-354094	TR DTC144WS
103	ET-356236	TR FET 2SK363 GR,BL
104	ET-361490	TR PHOTO PN268 R,S
105	ET-364064	TR UN4119
106	ET-360400	TR UN4210
107	ET-308472	TR 2SA1115 E,F,G F05
108	ET-364093	TR 2SA1283 E,F F05
109	ET-356224	TR 2SA1286 G,H,J F05
110	ET-352726	TR 2SA1392 T,U
111	ET-305463	TR 2SA970 GR,BL
112	ET-356153	TR 2SB643 Q,R,S,T
113	ET-321644	TR 2SC1213 C
114	ET-308977	TR 2SC2274K F F05
115	ET-308141	TR 2SC2603 G F05
116	ET-709703	TR 2SC2673 P,Q
117	ET-353366	TR 2SC3112 A,B
118	ET-355669	TR 2SC3246 G,H,J F05
119	ET-360067	TR 2SC3330 T,U F05
120	ET-349081	TR 2SC3383 S,T
121	ET-371028	TR 2SD1266 P,Q
122	ET-348948	TR 2SD1273 P,Q
123	ET-338565	TR 2SD1302 R,S
124	ET-372080	TR 2SD1330 S,T
125	EV-369716	VR ROTARY RK09K1130 B103
126	EV-369717	VR ROTARY RK09K1130 B104
127	EV-370992	VR ROTARY RK09K1130 B504
128	EX-361672	DEW SENSOR (HEATER) MRX
129	EZ-372209	BATTERY LITHIUM CL2020-1VC
130	HE-361456	HEAD E HVFMD0005B
131	HR-361454	HEAD COMBO HVMLA1004C
132	MB-360534	BELT IDLER
133	MB-360533	BELT PAL
134	MB-364011	BELT SYNC NB930N15-020T
135	MP-361543-B	PINCH ROLLER PART
136	MZ-361314-A	GEAR (1)
137	MZ-360640-A	GEAR (2)
138	MZ-361313	GEAR (3)
139	MZ-360639	GEAR (4)
140	MZ-360638	GEAR (5)
141	MZ-364677	GEAR CAM EJECT(2)
142	MZ-364676	GEAR CAM MAIN(2)
143	MZ-B360642	GEAR EJECT PART
144	MZ-360384	GEAR LOADING (S)
145	MZ-360385-A	GEAR LOADING (T)
146	MZ-366960	GEAR TU BLK (2)
147	MZ-360453	WORM GEAR
148	VT-372187	ROTARY ENCORDER D2ZQ-R9-1
149	VT-360148-B	VERTICAL POLE PART

HEAD DRUM BLOCK

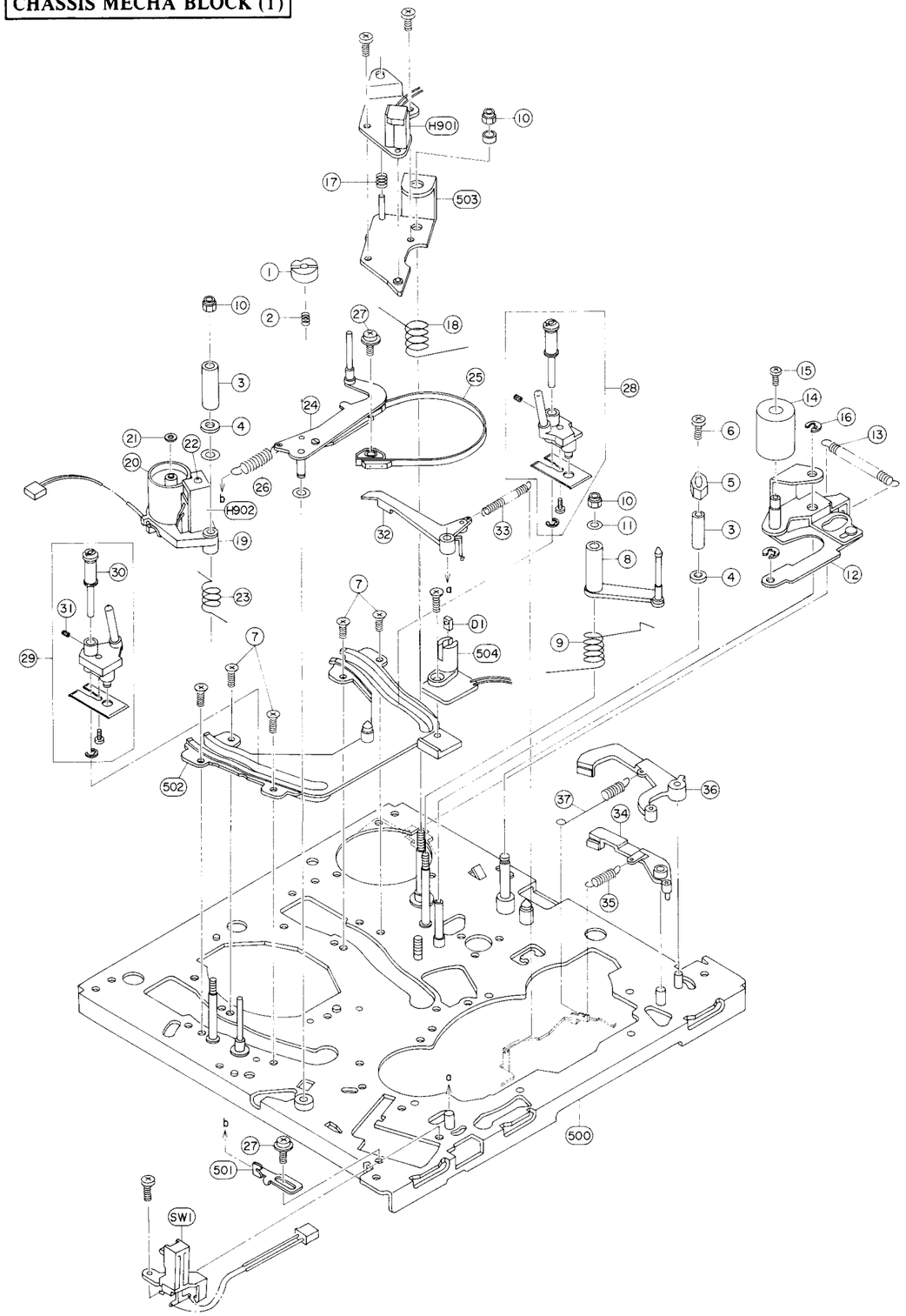


2. HEAD DRUM BLOCK

Ref. No.	Part No.	Description
2-1	BV-V1030A210E	LOWER DRUM BLK VS-220U
2-2	ZS-354332	PAN26X08STL CMT SW
2-3	BV-V1030A220F	UPPER DRUM BLK VS-303S
2-4	ZS-362241	BID30X09STL CMT
2-5	ZS-432843	PAN26X04STL CMT
2-TH901	EX-361672	DEW SENSOR (HEATER) MRX
2-6	BM-M3224A020A	PC MOTOR BLK SM-240
2-7	BV-B362443B	YOKE MAGNET (3) PART
2-8	ZS-356536	PAN26X06BRS NI3
2-9	VT-361452	DRUM EARTH SP ASSY(A)
2-10	ZS-421806	PAN30X08STL CMT

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

CHASSIS MECHA BLOCK (1)



3. CHASSIS MECHA BLOCK (1)

Ref. No.	Part No.	Description
3-1	ZS-360372-A	SCREW ADJUST
3-2	ZG-363349	SP PUSH ADJUST SCREW
3-3	MS-372186	GUIDE TAPE (6)
3-4	MS-370840-A	GUIDE TAPE (5)
3-5	MS-362181	GUIDE TAPE TU
3-6	ZS-608095	PAN20X05STL CMT
3-7	ZS-360391	SCREW SPECIAL
3-8	BL-B360353	LEVER REVIEW PART
3-9	ZG-360605	SP TORSION REVIEW ARM
3-10	ZW-350839	N30 NYLON
3-11	ZW-324417	PW31X060X050PSL
3-12	BL-B360361-B	ARM PINCH ROLLER PART
3-13	ZG-360602	SP PULL PINCH
3-14	MP-361543-B	PINCH ROLLER PART
3-15	ZS-477876	PAN20X03STL CMT
3-16	ZW-270101	RING E 300SUP CMT
3-17	ZG-313258	SP C-03.5/0.80-10.0 C-102
3-18	ZG-360603	SP TORSION A/C HEAD
3-19	MZ-B362281	HOLDER FE HEAD (2) PART
3-20	MR-364335	ROLLER IMPEDANCE
3-21	ZW-361458	PUSH WASHER 16X032X025PSL
3-22	ZS-460440	PAN20X04STL CMT
3-23	ZG-360604	SP TORSION HOLDER FE HEAD
3-24	BL-B360342-A	LEVER TENSION PART
3-25	BL-B360350	ARM TENSION BAND PART
3-26	ZG-321731	SP T2-04.0/0.40-25.0 T2-115
3-27	ZS-200614	SCREW TRIPLE PAN30X06
3-28	BV-V1047A080A	LOADING LEADER(R) BLK VS-112EG
3-29	BV-V1047A090A	LOADING LEADER(L) BLK VS-112EG
3-30	VT-360148-B	VERTICAL POLE PART
3-31	ZS-321729	6SET20X040SCM PKR WP
3-32	BL-B360486	LEVER FF BRAKE PART
3-33	ZG-364338-A	SP PULL FF BRAKE
3-34	ML-B364686-A	LEVER SUB BRAKE(R-2) PART
3-35	ZG-364339	SP PULL REW BRAKE
3-36	ML-B364685	LEVER BRAKE REVIEW(2) PART
3-37	ZG-364337	SP PULL REVIEW BRAKE
3-D1	ED-357540	D LED LN59
3-H901	HR-361454	HEAD COMBO HVMLA1004C
3-H902	HE-361456	HEAD E HVFMD0005B
3-SW1	ES-360433	SW LEAF MRX

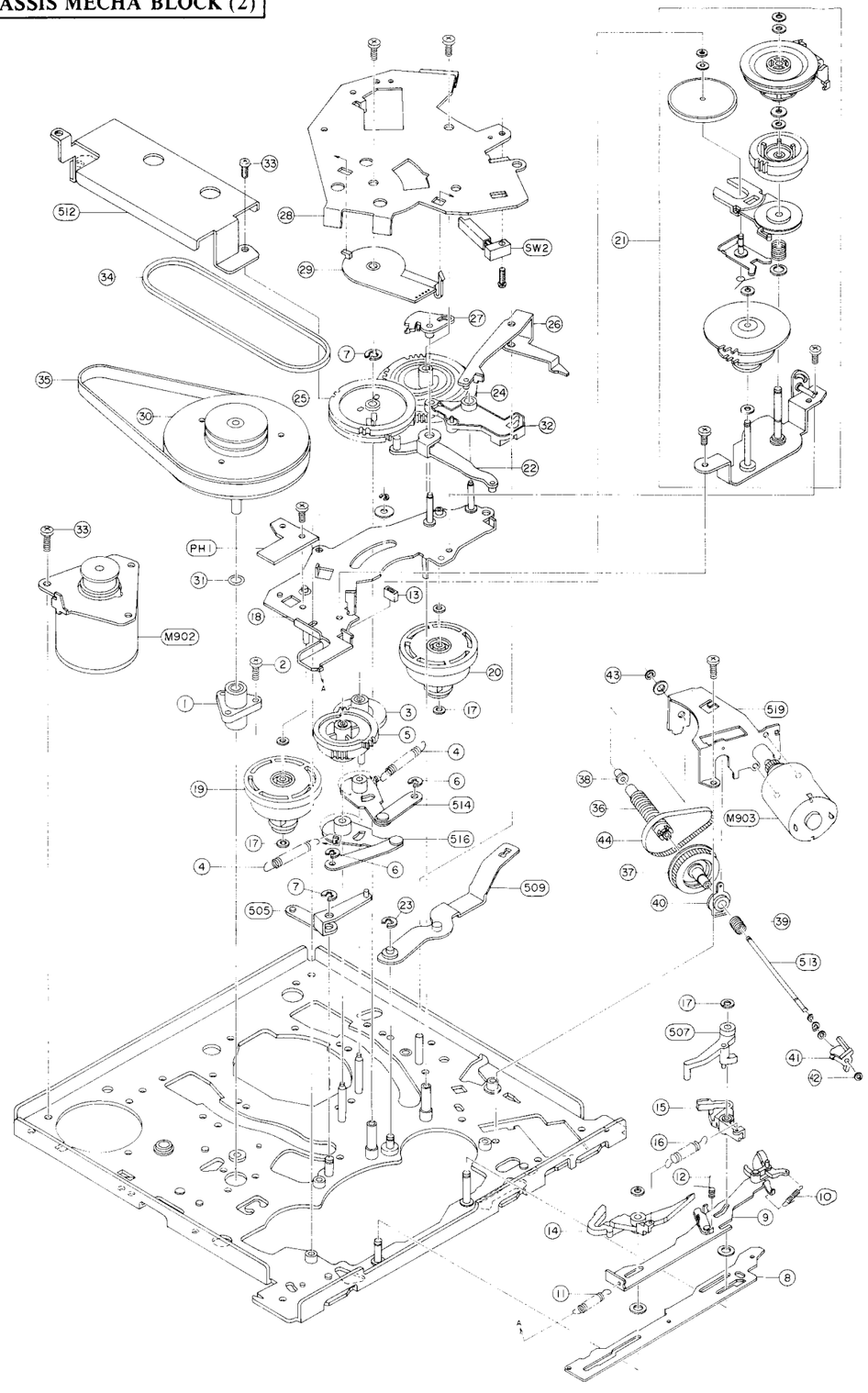
NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

4. CHASSIS MECHA BLOCK (2)

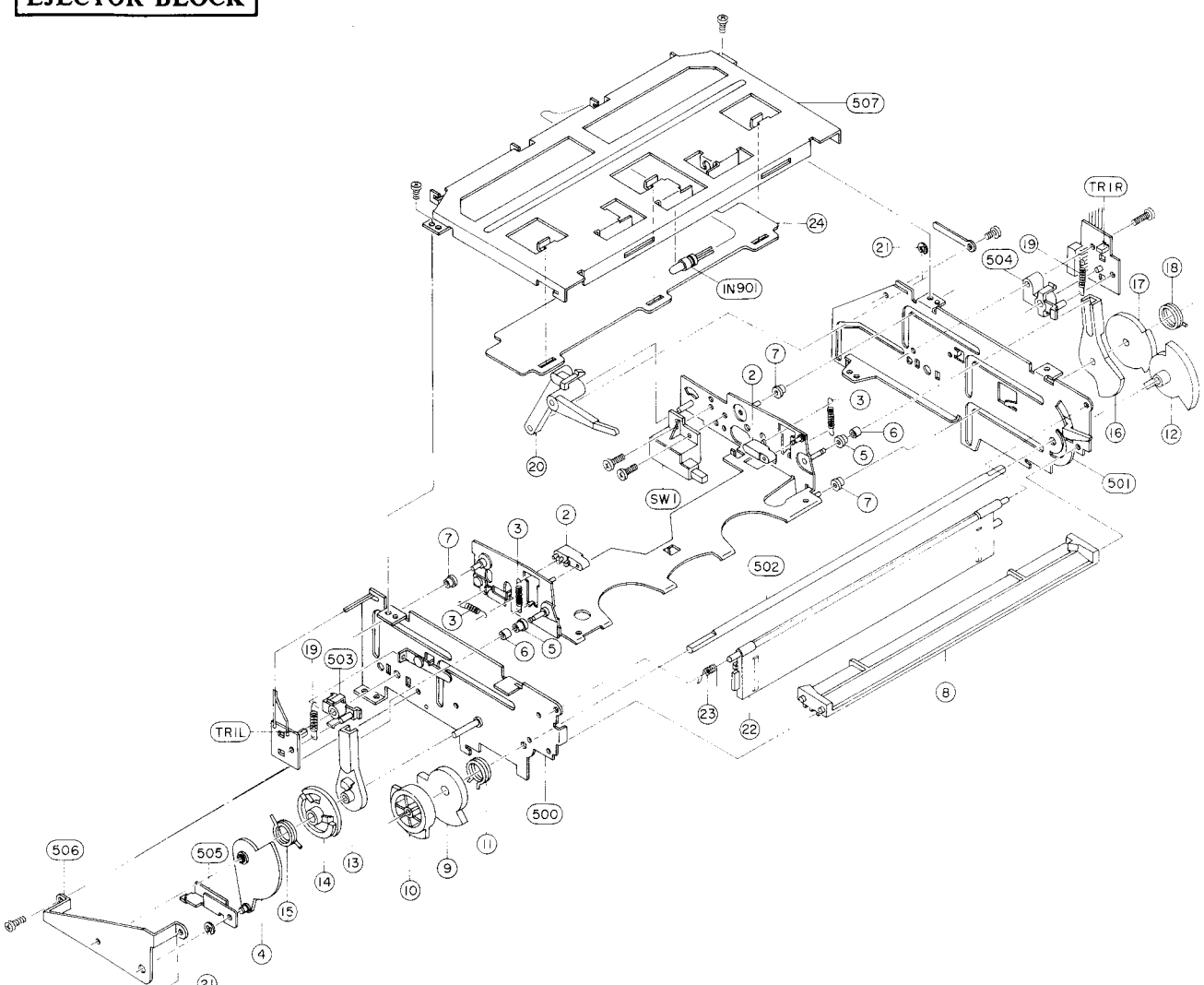
Ref. No.	Part No.	Description
4-1	MZ-B360528	HOLDER CAPSTAN PART
4-2	ZS-379350	PAN30X06STL CMT
4-3	MZ-360384	GEAR LOADING (S)
4-4	ZG-360601-A	SP PULL LOADING
4-5	MZ-360385-A	GEAR LOADING (T)
4-6	ZW-357164	RING E 230SUP CMT
4-7	ZW-270101	RING E 300SUP CMT
4-8	ML-366738	PLATE MAIN SLIDE(2)
4-9	MZ-B366734	PLATE F/R SLIDE (2)PART
4-10	ZG-358276	SP T6-03.2/0.20-12.5 T6-041
4-11	ZG-350891	SP T2-04.0/0.40-22.4 T2-114
4-12	ZG-360438	SP TORSION LIFTER
4-13	MB-366733	STOPPER SLIDE (2)
4-14	ML-B364684	ARM(TU) MAIM BRAKE(2) PART
4-15	ML-B364683	ARM(S) MAIN BRAKE(2) PART
4-16	ZG-366617	SP PULL MAIN BRAKE
4-17	ZW-360541	WASHER POLY SLIDER(3)
4-18	MZ-B360425-B	SUB FRAME PART
4-19	BR-B365715-B	TAKE-UP REEL TABLE PART 2
4-20	BR-B365716-B	SUPPLY REEL TABLE PART 2
4-21	MZ-366960	GEAR TU BLK (2)
4-22	ML-B360460-B	LEVER CAM SLIDE PART
4-23	ZW-410051	RETAINING RING E250SUP CMT
4-24	MZ-364677	GEAR CAM EJECT(2)
4-25	MZ-364676	GEAR CAM MAIN(2)
4-26	ML-B366735	LEVER CAM TENSION(2) PART
4-27	ML-366736	ARM SET FREE(2)
4-28	MZ-360477-B	PLATE MODE SW
4-29	VT-372187	ROTARY ENCORDER D2ZQ-R9-1
4-30	BF-B360531-B	FLYWHEEL CAPSTAN PART
4-31	ZW-360539	STOPPER OIL
4-32	ML-B366615-A	LEVER CAM F/R PART
4-33	ZS-379350	PAN30X06STL CMT
4-34	MB-360534	BELT IDLER
4-35	MB-360533	BELT PAL
4-36	MZ-360453	WORM GEAR
4-37	MR-364010	PULLEY WORM
4-38	ZW-360479-A	WASHER THRUST WORM
4-39	ZG-360441	SP TORSION ONE WAY
4-40	MZ-360440-A	HOLDER PULLEY WORM
4-41	MR-360432	PULLEY TRIGGER
4-42	ZW-361458	PUSH WASHER 16X032X025PSL
4-43	ZW-356657	RING E150SUP CMT
4-44	MB-364011	BELT SYNC NB930N15-020T
4-M902	BM-361544-B	MOTOR FG KCX-38FS5B
4-M903	BM-B361467	LOADING MOTOR PART
4-SW2	ES-361479	SW LEAF MSW-1594C
4-PH1	ET-361463	DETECTOR ON2170 Q.R

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

CHASSIS MECHA BLOCK (2)



EJECTOR BLOCK



5. EJECTOR BLOCK

Ref. No.	Part No.	Description
5-1	BV-V1047A250E	EJECTOR BLK VS-240
5-2	ML-361316	ARM PRESSING
5-3	ZG-357865	SP T5-04.0/0.40-11.2 T5-108
5-4	MZ-B360642	GEAR EJECT PART
5-5	MR-361310	ROLLER (1)
5-6	MR-361311	ROLLER (2)
5-7	MR-361312	ROLLER (3)
5-8	SZ-360607	GUIDE
5-9	MZ-361314-A	GEAR (1)
5-10	MZ-361313	GEAR (3)
5-11	ZG-360615	SP TORSION (EJ)
5-12	MZ-360640-A	GEAR (2)
5-13	ML-360635	ARM LOADING (L)
5-14	MZ-360639	GEAR (4)
5-15	ZG-360614	SP TORSION (L)
5-16	ML-360634	ARM LOADING (R)
5-17	MZ-360638	GEAR (5)
5-18	ZG-360613	SP TORSION (R)
5-19	ZG-358212	SP T5-06.3/0.50-16.0 T5-180

Ref. No.	Part No.	Description
5-20	BL-B361308	ARM LID OPENER PART
5-21	ZW-357164	RING E 230SUP CMT
5-IN901	EL-367397	PL CORD 14.0V 80MA 250/250
5-IN902	EL-367396	PL CORD 14.0V 80MA 190/190
5-SW1	ES-353622-A	SW PUSH EVQ-WU7001 02-2
5-TR1L	ET-361490	TR PHOTO PN268 R,S
5-TR1R	ET-361490	TR PHOTO PN268 R,S
5-22	SE-361317R-A	MASK CASSETTE HQ
5-23	ZG-360616	SP TORSION
5-24	SP-364666	PLATE MIRROR (2)

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

6. P.C BOARD BLOCK

Ref. No.	Part No.	Description
6-1A	BA-V1070A300A	PC MAIN(SECAM) BLK VS-245S
6-1B	BA-V1070A300B	PC MAIN(SECAM) BLK VS-240SK
6-1C	BA-V1070Q300C	PC MAIN(SECAM) BLK VS-247S [VS-247S/248S]
6-2A	BA-V1069A330L	PC OPERATION BLK VS-245S
6-2B	BA-V1069A330M	PC OPERATION BLK VS-240SK
6-3	BA-V1071A400D	PC PRE AMP BLK VS-245S

PC MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN P.C BOARD
- MAIN (VIDEO) P.C BOARD

PC OPERATION BLK CONSISTS OF FOLLOWING P.C BOARD.

- OPERATION (A) P.C BOARD
- OPERATION (B) P.C BOARD

7. MAIN P.C BOARD

Ref. No.	Part No.	Description
7-C308	EC-328081	C EC V CUT AS1 221M 80.0DC
7-C309	EC-364958	C EC V CUT SME 222M 35.0DC
7-C310	EC-364958	C EC V CUT SME 222M 35.0DC
7-D201	ED-344280	D SILICON H GMA-01-FY2 F05
7-D202	ED-362998	D ZENER H HZS9.1J B3 F05
7-D203	ED-344280	D SILICON H GMA-01-FY2 F05
7-D204	ED-344280	D SILICON H GMA-01-FY2 F05
7-D205	ED-344280	D SILICON H GMA-01-FY2 F05
7-D207	ED-337292	D ZENER H HZ5 B1
7-D301	ED-367202	D SILICON S5566B F12
7-D302	ED-344280	D SILICON H GMA-01-FY2 F05
7-D303	ED-344280	D SILICON H GMA-01-FY2 F05
7-D304	ED-346582	D ZENER H HZ30L 1
7-D401	ED-370786	D ZENER H HZS9.1J B2 F05
7-D403	ED-361915	D ZENER H HZS8.2J B3 F05
7-D404	ED-344280	D SILICON H GMA-01-FY2 F05
7-D405	ED-344280	D SILICON H GMA-01-FY2 F05
7-D406	ED-344280	D SILICON H GMA-01-FY2 F05
7-D407	ED-344280	D SILICON H GMA-01-FY2 F05
7-D408	ED-344280	D SILICON H GMA-01-FY2 F05
7-D409	ED-344280	D SILICON H GMA-01-FY2 F05
7-D410	ED-344280	D SILICON H GMA-01-FY2 F05
7-D411	ED-344280	D SILICON H GMA-01-FY2 F05
7-D601	ED-367502	D ZENER H HZS9L A1 F05
7-D602	ED-344280	D SILICON H GMA-01-FY2 F05
7-D603	ED-344280	D SILICON H GMA-01-FY2 F05
7-D604	ED-367502	D ZENER H HZS9L A1 F05
7-D605	ED-344280	D SILICON H GMA-01-FY2 F05
7-FL501	EO-360647	COIL OSC 1 MX-102
7-FL551	EH-360339	FILTER LC AP AF-25P
7-FR233	*ER-360559	R FUSE H F12 RF50S 1/2W 1R0J
7-FR308	*ER-372129	R FUSE H S10 ERQ14LE 1/4W 2R2K
7-FR309	*ER-371796	R FUSE H S17 ERQ-12H 1/2W 1R0J
7-FR310	*ER-362256	R FUSE H S10 ERQ14LE 1/4W R47K
7-FR323	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
7-IC201	EI-360561	IC AN3792
7-IC202	EI-360560	IC MN6178XAL
7-IC203	EI-360563	IC AN3794
7-IC204	EI-367571	IC LA6358T
7-IC205	EI-367571	IC LA6358T
7-IC206	EI-360564	IC M54548L
7-IC207	EI-358853	IC BA235
7-IC301	EI-367571	IC LA6358T
7-IC401	EI-366681	IC MB88521-140M
7-IC402	EI-353421	IC BA6229
7-IC403	EI-356811	IC M5224P
7-IC404	EI-360396	IC S-8054HN
7-IC405	EI-363347	IC TC9018P
7-IC501	EI-360648	IC BA5115
7-IC502	EI-358506	IC UPC1513HA
7-IC601	EI-346071	IC M5218L-21 [S ONLY]
7-L201	EO-345865	COIL FIX 1 EL0606SKI 100J
7-L501	EO-361913	COIL FIX 1 L-8 472J
7-L502	EO-370639	COIL FIX 1 L-8 272J
7-L551	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L552	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L553	EO-345876	COIL FIX 1 EL0606SKI 470J
7-L601	EO-345874	COIL FIX 1 EL0606SKI 330J
7-L602	EO-360554	COIL FIX 1 LAL02 F05 221K
7-L603	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L604	EO-332105	COIL FIX 1 EL0606SKI 121J
7-SF301	*EF-344106	FUSE ICP-N10 50V 0.4A
7-TR201	ET-353897	TR DTC114ES
7-TR202	ET-308472	TR 2SA1115 E,F,G F05
7-TR203	ET-360400	TR UN4210
7-TR204	ET-360400	TR UN4210
7-TR205	ET-354414	TR DTC144ES
7-TR206	ET-360399	TR DTC114TS
7-TR207	ET-308472	TR 2SA1115 E,F,G F05
7-TR208	ET-308472	TR 2SA1115 E,F,G F05
7-TR209	ET-353897	TR DTC114ES
7-TR210	ET-353897	TR DTC114ES
7-TR211	ET-308141	TR 2SC2603 G F05
7-TR301	ET-355669	TR 2SC3246 G,H,J F05
7-TR302	ET-371028	TR 2SD1266 P,Q
7-TR303	ET-352726	TR 2SA1392 T,U
7-TR304	ET-308977	TR 2SC2274K F F05
7-TR305	ET-360067	TR 2SC3330 T,U F05
7-TR306	ET-371028	TR 2SD1266 P,Q
7-TR307	ET-348948	TR 2SD1273 P,Q
7-TR308	ET-360067	TR 2SC3330 T,U F05
7-TR309	ET-356224	TR 2SA1286 G,H,J F05
7-TR311	ET-354094	TR DTC144WS
7-TR312	ET-354414	TR DTC144ES
7-TR313	ET-356224	TR 2SA1286 G,H,J F05
7-TR401	ET-354415	TR DTA144ES
7-TR403	ET-308141	TR 2SC2603 G F05
7-TR404	ET-360400	TR UN4210
7-TR405	ET-360400	TR UN4210
7-TR406	ET-308472	TR 2SA1115 E,F,G F05
7-TR407	ET-308472	TR 2SA1115 E,F,G F05
7-TR408	ET-308472	TR 2SA1115 E,F,G F05
7-TR409	ET-354094	TR DTC144WS
7-TR502	ET-308141	TR 2SC2603 G F05
7-TR503	ET-354414	TR DTC144ES
7-TR551	ET-308472	TR 2SA1115 E,F,G F05
7-TR552	ET-308141	TR 2SC2603 G F05
7-TR553	ET-308141	TR 2SC2603 G F05
7-TR554	ET-308472	TR 2SA1115 E,F,G F05
7-TR555	ET-308141	TR 2SC2603 G F05
7-TR556	ET-308472	TR 2SA1115 E,F,G F05
7-TR557	ET-308472	TR 2SA1115 E,F,G F05
7-TR558	ET-308472	TR 2SA1115 E,F,G F05
7-TR601	ET-356336	TR DTA114ES
7-TR602	ET-356224	TR 2SA1286 G,H,J F05
7-TR603	ET-308141	TR 2SC2603 G F05
7-TR604	ET-308141	TR 2SC2603 G F05
7-TR605	ET-321644	TR 2SC1213 C
7-TR606	ET-364060	TR DTC143ES [S]
7-TR607	ET-356236	TR FET 2SK363 GR,BL [S]
7-TR608	ET-308141	TR 2SC2603 G F05
7-TR609	ET-308472	TR 2SA1115 E,F,G F05
7-TR610	ET-308472	TR 2SA1115 E,F,G F05
7-TR611	ET-308472	TR 2SA1115 E,F,G F05
7-TR612	ET-308472	TR 2SA1115 E,F,G F05
7-TR613	ET-364093	TR 2SA1283 E,F F05
7-TR614	ET-308141	TR 2SC2603 G F05
7-VR201	EV-366436	R S-FIX H VM6CKPV31S 3P□.3W104
7-VR202	EV-356582	R S-FIX H RH0615CS4J 3P 4 73
7-VR301	EV-371696	R S-FIX H VM6CKPV31S 3P□.3W302

Ref. No.	Part No.	Description
7-VR401	EV-363511	R S-FIX EVTK-4CA00BQ4 3P 473
7-VR501	EV-356577	R S-FIX H RH0615C14J 3P 103
7-VR502	EV-356582	R S-FIX H RH0615CS4J 3P 473
7-X401	EI-347991	OSC CE CSA6.00MS 6MHZ
7-1A	SP-373188A	PANEL REAR S [S]
7-1B	SP-373188B	PANEL REAR SK [SK]
7-2A	BV-V1048A900A	VIF BLK VS-112S [S]
7-2B	BV-V1070A900A	VIF BLK VS-240SK [SK]
7-2C	BV-V1070A900B	V1F BLK VS-247SK [VS-247S/248S]
7-3A	EE-337173-A	TV TUNER TEEF1-008A [S]
7-3B	EE-365749	TV TUNER TEMZ1-0008A SK [SK]
7-3C	EE-375426	TV TUNER TEMQ1-009A [VS-247S/248S]
7-4A	BV-371163	RF CONV/BOOSTER MDLC3F553X S [S]
7-4B	BV-372182	RF CONVERTOR SW*V1070SK [SK]

8. MAIN (VIDEO) P.C BOARD

Ref. No.	Part No.	Description
8-DL1	EH-360340-A	DL EFD-EN645A31P
8-D1	ED-344280	D SILICON H GMA-01-FY2 F05
8-D2	ED-344280	D SILICON H GMA-01-FY2 F05
8-D3	ED-344280	D SILICON H GMA-01-FY2 F05
8-D5	ED-344280	D SILICON H GMA-01-FY2 F05
8-D8	ED-344280	D SILICON H GMA-01-FY2 F05
8-D101	ED-344280	D SILICON H GMA-01-FY2 F05
8-D102	ED-344280	D SILICON H GMA-01-FY2 F05
8-D103	ED-344280	D SILICON H GMA-01-FY2 F05
8-D104	ED-344280	D SILICON H GMA-01-FY2 F05
8-FL1	EH-364066	FILTER LC LP H322LWQ-1166MAD
8-FL101	EH-367043	FILTER LC BP H289BNKN-7235LHD
8-FL102	EH-364067	FILTER LC BP H297BAIN-5969DCD
8-FL103	EH-364069	FILTER LC LP H289LNJN-6231LRD
8-FR1	*ER-348272	R FUSE H S10 ERD2FC 1/4W 12R0G
8-IC1	EI-371023-A	IC HH3201P
8-IC101	EI-372243	IC BA7107S
8-L1	EO-351865	COIL FIX 1 LAL02 F05 330J
8-L3	EO-351868	COIL FIX 1 LAL02 F05 470K
8-L4	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L5	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L6	EO-354600	COIL FIX 1 LAL02 F05 101K
8-L7	EO-354600	COIL FIX 1 LAL02 F05 101K
8-L8	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L9	EO-360555	COIL FIX 1 LAL02 F05 180K
8-L10	EO-360555	COIL FIX 1 LAL02 F05 180K
8-L11	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L12	EO-351868	COIL FIX 1 LAL02 F05 470K
8-L13	EO-356599	COIL FIX 1 LAL02 F05 270K
8-L14	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L15	EO-351869	COIL FIX 1 LAL02 F05 820K
8-L16	EO-353902	COIL FIX 1 LAL02 F05 680K
8-L17	EO-351865	COIL FIX 1 LAL02 F05 330J
8-L18	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L19	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L20	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L21	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L22	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L23	EO-360554	COIL FIX 1 LAL02 F05 221K
8-L24	EO-360554	COIL FIX 1 LAL02 F05 221K
8-L101	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L102	EO-357508	COIL FIX 1 LAL02 F05 151K
8-L103	EO-357508	COIL FIX 1 LAL02 F05 151K
8-L104	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L105	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L106	EO-353900	COIL FIX 1 LAL02 F05 150K
8-SW101	ES-371027	SW SLIDE HSW0847-01-010 1-2
8-TR1	ET-308472	TR 2SA1115 E,F,G F05
8-TR2	ET-308141	TR 2SC2603 G F05
8-TR3	ET-354414	TR DTC144ES
8-TR4	ET-308472	TR 2SA1115 E,F,G F05
8-TR5	ET-308141	TR 2SC2603 G F05
8-TR9	ET-308141	TR 2SC2603 G F05
8-TR10	ET-308141	TR 2SC2603 G F05
8-TR12	ET-308141	TR 2SC2603 G F05
8-TR13	ET-308141	TR 2SC2603 G F05
8-TR14	ET-308472	TR 2SA1115 E,F,G F05
8-TR15	ET-356224	TR 2SA1286 G,H,J F05
8-TR16	ET-354414	TR DTC144ES
8-TR17	ET-354415	TR DTA144ES
8-TR19	ET-308141	TR 2SC2603 G F05
8-TR21	ET-308141	TR 2SC2603 G F05
8-TR22	ET-353897	TR DTC114ES
8-TR101	ET-353897	TR DTC114ES
8-TR102	ET-354415	TR DTA144ES
8-TR103	ET-364064	TR UN4119
8-TR104	ET-308141	TR 2SC2603 G F05
8-TR105	ET-308141	TR 2SC2603 G F05
8-TR106	ET-308141	TR 2SC2603 G F05
8-TR107	ET-308472	TR 2SA1115 E,F,G F05
8-VL101	EO-364062	COIL VARI 1 F291CNS-0666GW
8-VL102	EO-364062	COIL VARI 1 F291CNS-0666GW
8-VR1	EV-366845	R S-FIX V RVF8W01 3P 102
8-VR101	EV-347942	R S-FIX V RVF8W01 3P 502
8-VR102	EV-326719	R S-FIX V TM8KH1-1S 3P0.50W203
8-X101	EI-309878	OSC X'TAL 4.433619MHZ

9. OPERATION (A) P.C BOARD

Ref. No.	Part No.	Description
9-D901	ED-360409	D PHOTO PN323B
9-D902	EM-366754	IND LE LB-402MB4
9-D903	ED-355607	D LED PR5505S RED
9-D904	ED-355607	D LED PR5505S RED
9-D905	ED-356424	D LED BG5525S GREEN
9-D906	ED-355607	D LED PR5505S RED
9-D907	ED-355607	D LED PR5505S RED
9-D908	ED-355607	D LED PR5505S RED
9-D911	ED-355607	D LED PR5505S RED
9-D912	ED-355607	D LED PR5505S RED
9-D913	ED-356424	D LED BG5525S GREEN
9-D914	ED-624903	D SILICON H 1S2473
9-D915	ED-307572	D SILICON H 1SS131
9-D916	ED-307572	D SILICON H 1SS131
9-D917	ED-307572	D SILICON H 1SS131
9-D918	ED-307572	D SILICON H 1SS131
9-D920	ED-624903	D SILICON H 1S2473
9-D923	ED-624903	D SILICON H 1S2473
9-IC901	EI-373193	IC MB88551-256N
9-IC902	EI-367271	IC UPC1490HA
9-IC903	EI-347769	IC M54514AP
9-IC904	EI-371683	IC MBM2212-25P-G
9-IC905	EI-361554	IC MB88301A-P
9-IC906	EI-360396	IC S-8054HN
9-SW901	ES-349474	SW TACT SKHHAM004A
9-SW902	ES-349474	SW TACT SKHHAM004A
9-SW903	ES-349474	SW TACT SKHHAM004A
9-SW904	ES-349474	SW TACT SKHHAM004A
9-SW905	ES-349474	SW TACT SKHHAM004A
9-SW906	ES-349474	SW TACT SKHHAM004A
9-SW907	ES-349474	SW TACT SKHHAM004A
9-SW908	ES-349474	SW TACT SKHHAM004A
9-SW909	ES-349474	SW TACT SKHHAM004A
9-SW910	ES-349474	SW TACT SKHHAM004A
9-SW911	ES-349474	SW TACT SKHHAM004A
9-SW912	ES-349474	SW TACT SKHHAM004A
9-SW915	ES-349474	SW TACT SKHHAM004A
9-SW916	ES-349474	SW TACT SKHHAM004A
9-SW917	ES-360408	SW SLIDE ESD-14187 1-01-02N [S]
9-SW918	ES-366697	SW SLIDE ESD-14137A 1-01-03N
9-SW919	ES-364906	SW SLIDE HSW0789-01-800
9-TR901	ET-354415	TR DTA144ES
9-TR902	ET-356153	TR 2SB643 Q,R,S,T
9-TR903	ET-356153	TR 2SB643 Q,R,S,T
9-VR901	EV-369716	VR ROTARY RK09K1130 B103
9-VR902	EV-369717	VR ROTARY RK09K1130 B104
9-VR903	EV-370992	VR ROTARY RK09K1130 B504
9-X901	EI-356371	OSC X'TAL MS-309 4.194304MHZ

10. TRANS. P.C BOARD

Ref. No.	Part No.	Description
10-C701	*EC-369818	C CE V CS17FZ 103Z 400AC
10-D701	*ED-371397	D SILICON DSF10T-FA6 F10
10-D702	*ED-371397	D SILICON DSF10T-FA6 F10
10-D703	*ED-371397	D SILICON DSF10T-FA6 F10
10-D704	*ED-371397	D SILICON DSF10T-FA6 F10
10-D705	*ED-371398	D SILICON DSA17-FB8 F12
10-D706	*ED-371398	D SILICON DSA17-FB8 F12
10-D707	*ED-371398	D SILICON DSA17-FB8 F12
10-D708	*ED-371398	D SILICON DSA17-FB8 F12
10-F1	*EF-258344	FUSE SEMKO T 250V 800MA
10-F2	*EF-623103	FUSE SEMKO T 250V 1.00A
10-FR701	*ER-362257	R FUSE H S17 ERQ-12H 1/2W R47K
10-T1	*BT-373134	TRANS POW V70S-S
10-1	*EW-371933	AC CORD 200 KP419LTCE B100 A

11. PRE-AMP P.C BOARD

Ref. No.	Part No.	Description
11-IC801	EI-352714	IC HA11752
11-L801	EO-360554	COIL FIX 1 LAL02 F05 221K
11-L802	EO-345881	COIL FIX 1 EL0606SKI 101J
11-L803	EO-345881	COIL FIX 1 EL0606SKI 101J
11-L804	EO-330252	COIL FIX 1 EL0606SKI 101K
11-TR801	ET-308141	TR 2SC2603 G F05
11-TR802	ET-338565	TR 2SD1302 R,S
11-TR803	ET-372080	TR 2SD1330 S,T
11-TR804	ET-372080	TR 2SD1330 S,T

12. OPERATION (B) P.C BOARD

Ref. No.	Part No.	Description
12-CL951	EZ-372209	BATTERY LITHIUM CL2020-1VC
12-CL952	EZ-372209	BATTERY LITHIUM CL2020-1VC
12-D951	ED-346537	D ZENER H HZ9L A1
12-D952	ED-346537	D ZENER H HZ9L A1
12-D953	ED-346537	D ZENER H HZ9L A1
12-D954	ED-307572	D SILICON H 1SS131
12-D955	ED-307572	D SILICON H 1SS131
12-D956	ED-307572	D SILICON H 1SS131
12-D957	ED-309069	D ZENER H HZ6 B2
12-D959	ED-346597	D ZENER H HZ4 B1
12-D960	ED-307572	D SILICON H 1SS131
12-D961	ED-372680	D ZENER H HZS6L B3 F05
12-IC951	EI-367407	IC UPD6105C-002
12-IC952	EI-337530	IC UPC574J
12-L951	EO-353901	COIL FIX 1 LAL02 F05 560K
12-SF951	*EF-344106	FUSE ICP-N10 50V 0.4A
12-TR951	ET-364060	TR DTC143ES
12-TR952	ET-349081	TR 2SC3383 S,T
12-TR953	ET-308472	TR 2SA1115 E,F,G F05
12-TR954	ET-308472	TR 2SA1115 E,F,G F05
12-TR956	ET-353366	TR 2SC3112 A,B
12-TR957	ET-305463	TR 2SA970 GR,BL
12-TR958	ET-308141	TR 2SC2603 G F05
12-TR959	ET-355669	TR 2SC3246 G,H,J F05
12-VC951	EC-372191	C S-FIX H ECR-HA030E41 5.5-30

13. CHANNEL PLUS P.C BOARD (S ONLY)

Ref. No.	Part No.	Description
13-D1	ED-344280	D SILICON H GMA-01-FY2 F05
13-D2	ED-344280	D SILICON H GMA-01-FY2 F05
13-D3	ED-344280	D SILICON H GMA-01-FY2 F05
13-D4	ED-367948	D ZENER H HZS11J B2 F05
13-IC1	EI-373171	IC M51321P
13-IC2	EI-373171	IC M51321P
13-IC3	EI-328593	IC HD14053BP
13-P3	EJ-373170	SOCKET HXC1525-01-010 21P
13-P4	EJ-373170	SOCKET HXC1525-01-010 21P
13-TR1	ET-321644	TR 2SC1213 C
13-TR2	ET-354415	TR DTA144ES
13-TR3	ET-354415	TR DTA144ES
13-TR4	ET-354414	TR DTC144ES
13-TR5	ET-321644	TR 2SC1213 C

14. CONNECTOR P.C BOARD (SK ONLY)

Ref. No.	Part No.	Description
14-SW151	ES-369603	SW SLIDE HSW0896-010 2-02-02N
14-P151	EJ-373170	SOCKET HXC1525-01-010 21P

FINAL ASSEMBLY BLOCK

15. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
15-1A	BD-V1070A130A	PANEL FRONT BLK VS-245S
15-1A-B	BD-V1070A130C	PANEL FRONT BLK VS-245S-B
15-1B	BD-V1070A130B	PANEL FRONT BLK VS-240SK
15-1B-B	BD-V1070A130D	PANEL FRONT BLK VS-240SK-B
15-1C-B	BD-V1070A130F	PANEL FRONT BLK VS-244S-B
15-1D-B	BD-V1070Q130H	PANEL FRONT BLK VS-247S-B
15-1E-B	BD-V1070Q130J	PANEL FRONT BLK VS-248S-B
15-2	SK-364643	KNOB SEARCH SLIDE
15-3	SP-369714A-B	COVER UPPER
15-3-B	SP-369714B-B	COVER UPPER-B
15-4	ZS-362378	PLX BID30X10STL CMT
15-5	ZS-361104	PLX BID30X08STL NI3
15-5-B	ZS-361105	PLX BID30X08STL BNI
15-6	SA-353927B	FOOT(2)
15-7	AV-348415	CORD SECAM

SYMBOL FOR COLOR VARIATION

NON : SILVER
B : BLACK

16. REMOTE CONTROL UNIT RC-V240

Ref. No.	Part No.	Description
16-1	AV-370604	REMOCON RC-V240A-F
16-1-B	AV-370605	REMOCON RC-V240A-FB
16-IC1	EI-714630	IC UPD6102G
16-D1	ED-705414	D LED SE303A INFRARED
16-D2	ED-307572	D SILICON H 1SS131
16-D3	ED-307572	D SILICON H 1SS131
16-Q1	ET-709703	TR 2SC2673 P,Q
16-MF1	EI-720002	OSC CE CSB455P 455KHZ
16-2	SC-720003	COVER BATTERY RC-V270/V240-S
16-2-B	SC-720004	COVER BATTERY RC-V270/V240-B

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AV-370604	16-1	ED-344280	7-D405	EF-344106	7-SF301	EI-720002	76
AV-370605	16-1-B	ED-344280	7-D406	EF-344106	12-SF951	EI-720002	16-MF1
BA-V1069A330L	6-2A	ED-344280	7-D407	EF-623103	40	EJ-373170	13-P3
BA-V1069A330M	6-2B	ED-344280	7-D408	EF-623103	10-F2	EJ-373170	13-P4
BA-V1070A300A	6-1A	ED-344280	7-D409	EH-360339	43	EJ-373170	14-P151
BA-V1070A300B	6-1B	ED-344280	7-D410	EH-360339	7-FL551	EL-367396	5-IN902
BA-V1071A400D	6-3	ED-344280	7-D411	EH-360340-A	42	EL-367397	5-IN901
BD-V1070A130A	15-1A	ED-344280	7-D602	EH-360340-A	8-DL1	EM-366754	79
BD-V1070A130B	15-1B	ED-344280	7-D603	EH-364066	47	EM-366754	9-D902
BD-V1070A130C	15-1A-B	ED-344280	7-D605	EH-364066	8-FL1	EO-330252	11-L804
BD-V1070A130D	15-1B-B	ED-344280	8-D1	EH-364067	45	EO-332105	7-L604
BD-V1070A130F	15-1C-B	ED-344280	8-D2	EH-364067	8-FL102	EO-345865	7-L201
BF-B360531-B	1	ED-344280	8-D3	EH-364069	46	EO-345874	7-L601
BF-B360531-B	4-30	ED-344280	8-D5	EH-364069	8-FL103	EO-345876	7-L553
BL-B360342-A	3-24	ED-344280	8-D8	EH-367043	44	EO-345881	7-L551
BL-B360350	2	ED-344280	8-D101	EH-367043	8-FL101	EO-345881	7-L552
BL-B360350	3-25	ED-344280	8-D102	EI-309878	78	EO-345881	7-L603
BL-B360353	3-8	ED-344280	8-D103	EI-309878	8-X101	EO-345881	8-L8
BL-B360361-B	3-12	ED-344280	8-D104	EI-328593	55	EO-345881	8-L11
BL-B360486	3-32	ED-344280	13-D1	EI-328593	13-IC3	EO-345881	8-L14
BL-B361308	5-20	ED-344280	13-D2	EI-337530	72	EO-345881	8-L18
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BM-M3224A020A	5	ED-346537	12-D952	EI-346071	7-IC601	EO-345881	8-L101
BM-M3224A020A	2-6	ED-346537	12-D953	EI-347769	66	EO-345881	8-L104
BM-361544-B	4	ED-346582	7-D304	EI-347769	9-IC903	EO-345881	8-L105
BM-361544-B	4-M902	ED-346597	33	EI-347991	75	EO-345881	11-L802
BR-B365715-B	7	ED-346597	12-D959	EI-347991	7-X401	EO-345881	11-L803
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BV-V1047A080A	10	ED-356424	9-D905	EI-358853	50	EO-356599	8-L13
BV-V1047A080A	3-28	ED-356424	9-D913	EI-358853	7-IC207	EO-357507	8-L4
BV-V1047A090A	9	ED-357540	18	EI-360396	68	EO-357507	8-L5
BV-V1047A090A	3-29	ED-357540	3-D1	EI-360396	7-IC404	EO-357507	8-L21
BV-V1047A250E	5-1	ED-360409	21	EI-360396	9-IC906	EO-357507	8-L22
BV-V1048A900A	15	ED-360409	9-D901	EI-360560	61	EO-357508	8-L102
BV-V1048A900A	7-2A	ED-361915	29	EI-360560	7-IC202	EO-357508	8-L103
BV-V1070A900A	16	ED-361915	7-D403	EI-360561	48	EO-360554	7-L602
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BV-371163	12	ED-362998	7-D202	EI-360563	49	EO-360554	8-L24
BV-371163	7-4A	ED-364034	28	EI-360563	7-IC203	EO-360554	11-L801
BV-372182	13	ED-367202	27	EI-360564	67	EO-360555	8-L9
BV-372182	7-4B	ED-367202	7-D301	EI-360564	7-IC206	EO-360555	8-L10
EC-328081	7-C308	ED-367502	7-D601	EI-360565	64	EO-360647	7-FL501
EC-364958	7-C309	ED-367502	7-D604	EI-360648	51	EO-361913	7-L501
EC-364958	7-C310	ED-367948	13-D4	EI-360648	7-IC501	EO-364062	8-VL101
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ED-344280	7-D204	EE-365749	38	EI-373171	13-IC2	ES-349474	9-SW905
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ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AC	Alternating Current	LM STP	Loading Motor SToP
ACC	Auto Color Control	LP	Long Play
A/C	Audio and Control	LPF	Low Pass Filter
ADJ	ADJust(ment)	LSW	Loading SWitch
AFC	Auto Frequency Control	ME-SECAM	Middle East SECAM
AFT	Auto Fine Tuning	MI-COM	MIcro COMputer
AGC	Auto Gain Control	MM	Mono-stayble Multi
AH(P)	Audio Head (Play Back)	MRS	Motor ReverSe
AH(R)	Audio Head (Record)	NG	Noise Gate
AL	ALl	NON-LIN	NON-LINear
AL	ALways	N.T.S.C.	National Television System Committee
ALC	Auto Level Control	O MUTE	Output MUTE
A-SW·P	Audio-SWitching·Pulse	OSC	OSCillator
A·MUTE	Audio·MUTE	PAL	Phase Alternation Line
AUT/MAN	AUTO/MANual	PB	Play Back
ANT	ANTenna	P-COM	Phase-COMparator
APC	Automatic Phase Control	PDN	Power DowN
ASSY	ASSemblY	PG	Pulse Generator
BAL	BALance	PL, PLG	PLunger (PLunGer)
B/C	Buzz and Charactor	POS	POSition
B DOWN	Break DOWN	PRG	PRoGram
BGP	Burst Gate Pulse	P & S	Power supply & System control
BLK	BLacK or BLock	PU	Pick Up (head, pulse)
BM	Balanced Modulator	PWR	PoWeR
BPF	Band Pass Filter	Q	Quality factor
BS	Band Select	RC	Rotary Control
BS (SB)	Brake Supply (Supply Brake)	REC	RECord
BT (TB)	Brake Takeup (Takeup Brake)	REF	REFerence
BU	Back Up	REF-V	REFerence Vertical signal
B/W	Black and White	REG	REGulator
CCIR	Comité Consultatif International des Radio Communications	REV (REVW)	REView (REVieW)
		REW	REWind
CH (Ch.)	CHannel (Channel)	RFB	Radio Frequency Booster
CK	Color Killer	RM	Reel Motor
CLK	CLocK	RM PWR	Reel Motor PoWeR
CLP	CLiP	R·S SW	Record·Safety SWitch
CM	Capstan Motor	RST (RES)	ReSeT (RESet)
CN	CoNnector	RVS	ReVerSe
COMP	COMParator	S	Sensor, Shield
Comp	Comparison	SC	SimulCast
C or R	Cue or Review	S CLK	Serial CLocK
CR 1	Cue Review 1 (high)	S & A	Servo & Audio
CSW	Cassette SWitch	SECAM	Séquentiel à Memoire
CTL	ConTroL	SEP (SEPA)	SEParator (SEPArator)
CUE	CUE	SFP	Sync Front Pulse
CW	Carrier Wave	S & H	Sample and Hold
DAC	Digital to Analog Converter	SLP	Super Long Play
DC	Direct Current	SP	Standard Play
DEMOD	DEMODulator	SPD	SPeeD
DET	DETect (DETector)	SRP	Supply Reel Pulse
DL	Delay Line	SRV	SeRVo
DM	Drum Motor	SOW	Sync On Word
DOC	Drop Out Compensator	STBY	STandBY
D·P·E	Drum·Phase·Error	SW	SWitch
D·PG	Drum·Pulse Generator	SW'NG	SWitchiNG
D·TPZ	Drum·TraPeZoid	SWP	SWitching Pulse
EE	Electronic to Electronic	SYNC	SYNChronize
EF	Emitter Follower	T-AUDIO	Tuner AUDIO
EM	Eject Motor	TA-MUTE	Tuner Audio MUTE
EMPHA	EMPHAsis	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
ENVIN	ENVelope INput	TRK	TRacKing
ESW	Eject SWitch	TRP	Take up Reel Pulse
EQ	EQualizer	T/U	Take Up
FE	Full track Erase	TV	TeleVision
FF	Flip-Flop	UHF	Ultra High Frequency
FG	Frequency Generator	UNR	UNRegulated
Fig.	Figure	V	Vertical
FM	Frequency Modulation	VCO	Voltage Controlled Oscillator
Fo	resonance Frequency	VD	Vertical Drive
FREQ	FREQuency	VF	Voltage for Fine tuning
FSI	Field Start Inhibit	VHF	Very High Frequency
GND	GrouND	VHS	Video Home System
H	Horizontal	VID	VIDeo
HP	Horizontal (sync) Pulse	VIDEO-J	VIDEO Judge
HPF	High Pass Filter	VIF	Video Intermediate Frequency
HT	HeaTer	VJ	Video Judge
IC	Integrated Circuit	VM	Voltage for Memory
ID	IDentification	VOB	Video On Blank
IDL	IDLe (Voltage)	VOW	Video On Word
INS	INSert	VP	Vertical (sync) Pulse
INV	INVerter	VT	Voltage for Tuning
L·CTL	Lamp·ConTroL	WHT	WHiTe
LED	Light Emitting Diode	2H	2 Hour (SP)
LDI	LoaD Input	6H	6 Hour (SLP)
LM	Loading Motor		

AKAI ELECTRIC CO., LTD.

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AKAI

MODEL VS-240SK
MODEL VS-244/245S
MODEL VS-247/248S

SCHEMATIC DIAGRAM AND PC BOARDS

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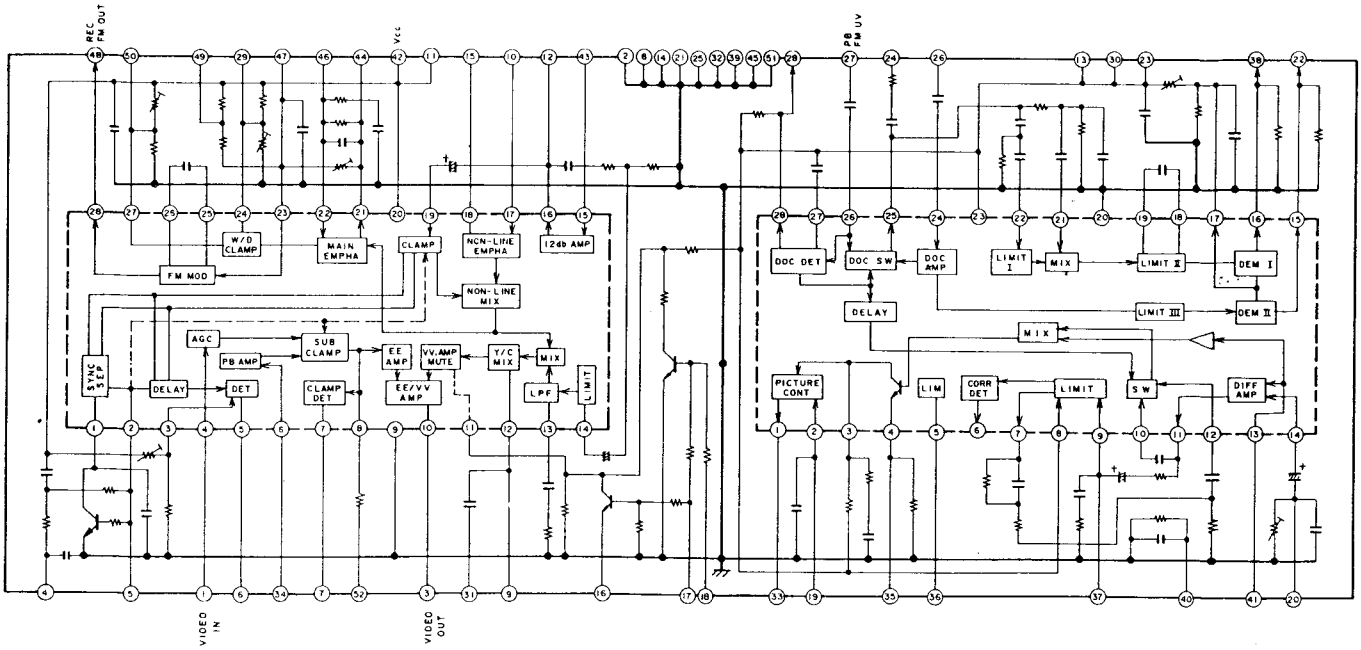
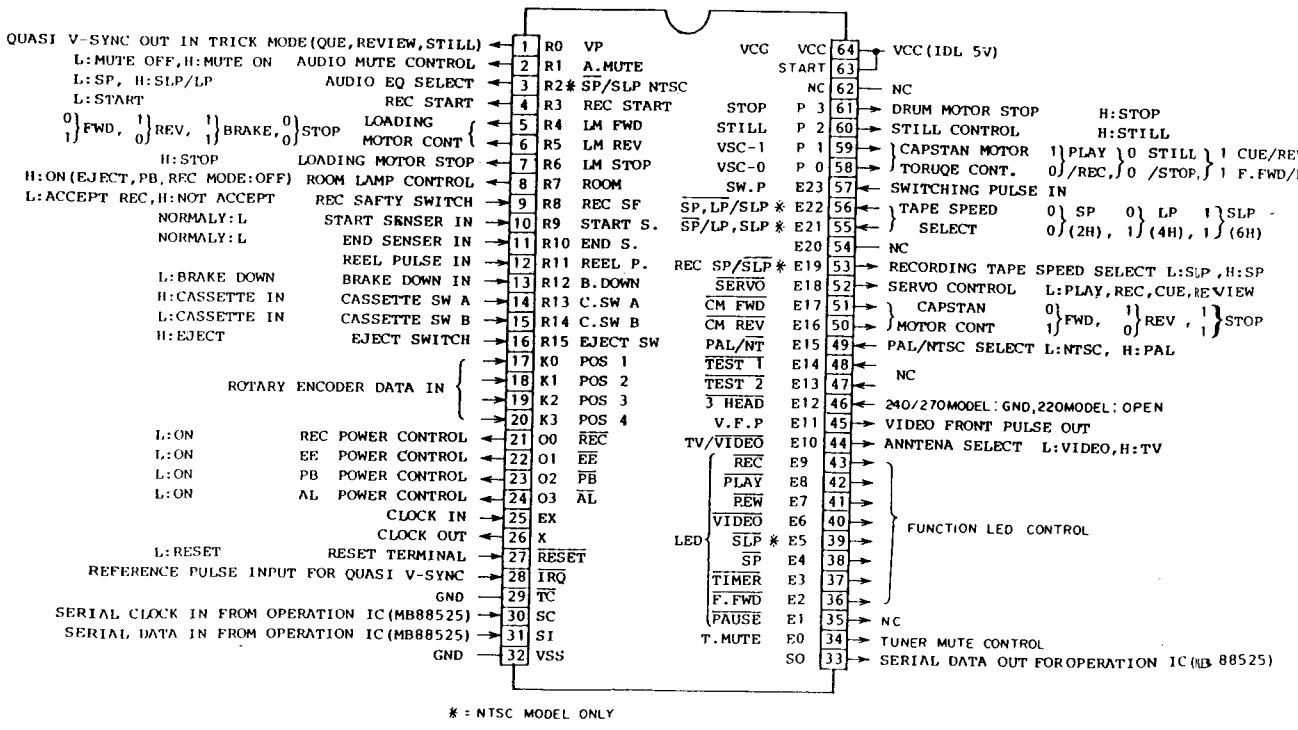
HH3210P (VIDEO Y. SIGNAL PROCCESSING IC)



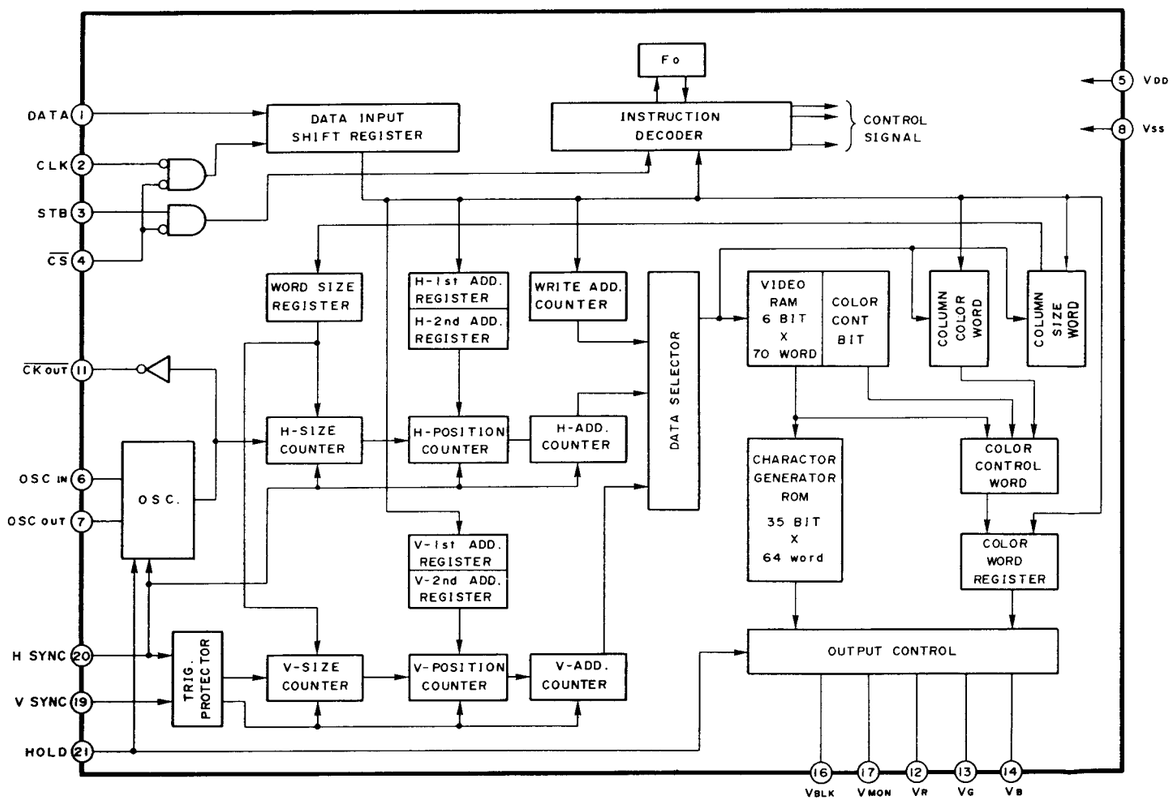
MB88521-140M (SYSTEM CONTROL CPU)

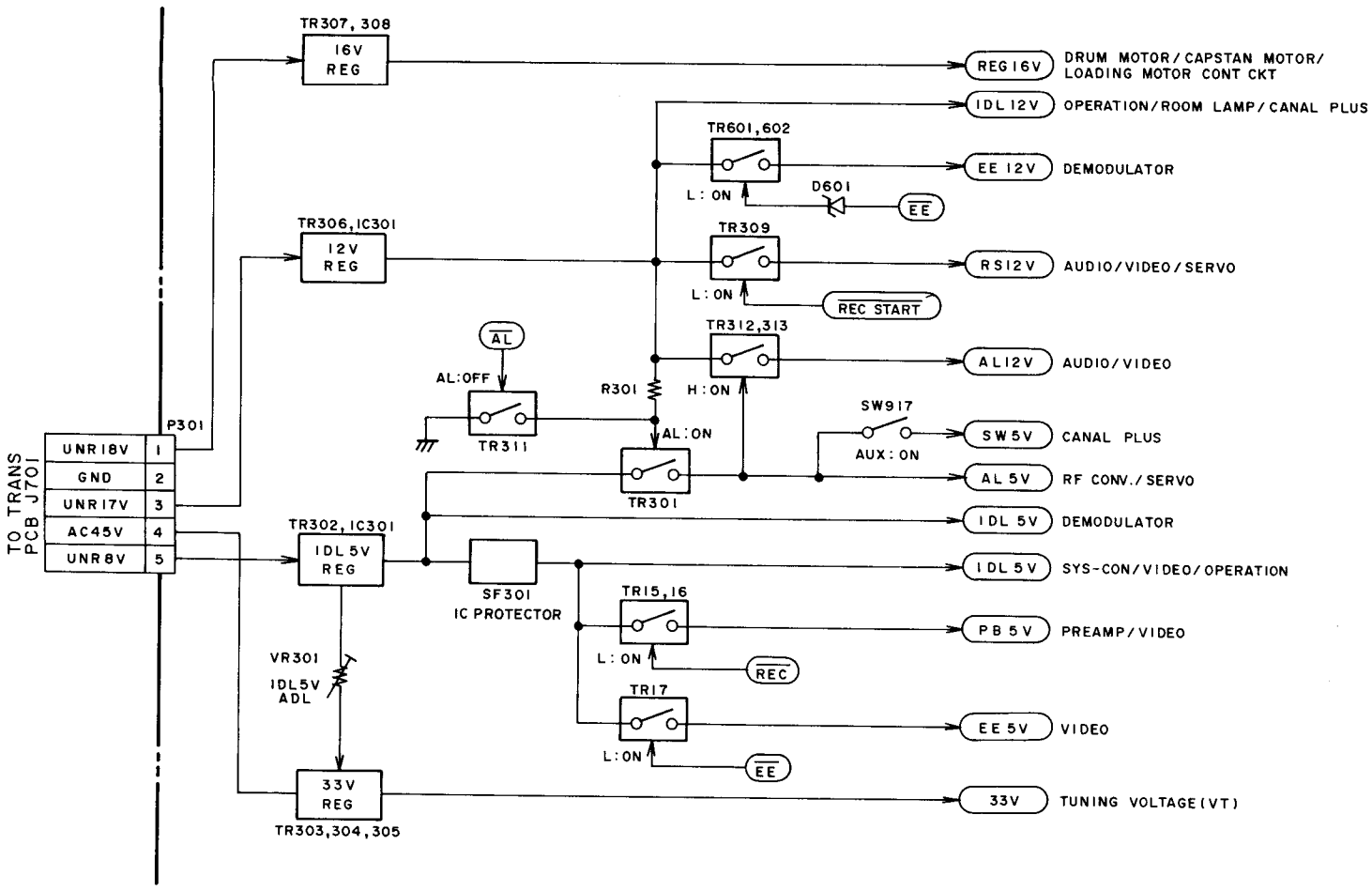

QUASI V-SYNC OUT IN TRICK MODE (QUE, REVIEW, STILL) ← 1 R0 VP
L: MUTE OFF, H: MUTE ON AUDIO MUTE CONTROL ← 2 R1 A.MUTE
L: SP, H: SLP/LP AUDIO EQ SELECT ← 3 R2 * SP/SLP NTSC
L: START REC START ← 4 R3 REC START
0/1 FWD, 1/0 REV, 1/1 BRAKE, 0/0 STOP LOADING MOTOR CONT ← 5 R4 LM FWD
← 6 R5 LM REV
H: STOP LOADING MOTOR STOP ← 7 R6 LM STOP
H: ON (EJECT, PB, REC MODE: OFF) ROOM LAMP CONTROL ← 8 R7 ROOM
L: ACCEPT REC, H: NOT ACCEPT REC SAFTY SWITCH ← 9 R8 REC SF
NORMALY: L START SENSER IN ← 10 R9 START S.
NORMALY: L END SENSER IN ← 11 R10 END S.
REEL PULSE IN ← 12 R11 REEL P.
L: BRAKE DOWN BRAKE DOWN IN ← 13 R12 B.DOWN
H: CASSETTE IN CASSETTE SW A ← 14 R13 C.SW A
L: CASSETTE IN CASSETTE SW B ← 15 R14 C.SW B
H: EJECT EJECT SWITCH ← 16 R15 EJECT SW
ROTARY ENCODER DATA IN ← 17 K0 POS 1
← 18 K1 POS 2
← 19 K2 POS 3
← 20 K3 POS 4
L: ON REC POWER CONTROL ← 21 O0 REC
L: ON EE POWER CONTROL ← 22 O1 EE
L: ON PB POWER CONTROL ← 23 O2 PB
L: ON AL POWER CONTROL ← 24 O3 AL
CLOCK IN ← 25 EX
CLOCK OUT ← 26 X
L: RESET RESET TERMINAL ← 27 RESET
REFERENCE PULSE INPUT FOR QUASI V-SYNC ← 28 IRQ
GND — 29 TC
SERIAL CLOCK IN FROM OPERATION IC (MB88525) ← 30 SC
SERIAL DATA IN FROM OPERATION IC (MB88525) ← 31 SI
GND — 32 VSS
VCC VCC 64 ← VCC (IDL 5V)
START 63
NC 62 — NC
STOP P 3 61 → DRUM MOTOR STOP H: STOP
STILL P 2 60 → STILL CONTROL H: STILL
VSC-1 P 1 59 → CAPSTAN MOTOR 1/1 PLAY, 1/0 STILL, 0/1 CUE/REVIEW
VSC-0 P 0 58 → TORUQE CONT. 0/REC, 0/STOP, 0/1 F.FWD/REW
SW.P E23 57 → SWITCHING PULSE IN
SP, LP/SLP * E22 56 → TAPE SPEED SELECT 0/0 SP (2H), 0/1 LP (4H), 1/1 SLP (6H)
SP/LP, SLP * E21 55 →
E20 54 — NC
REC SP/SLP * E19 53 → RECORDING TAPE SPEED SELECT L: SLP, H: SP
SERVO E18 52 → SERVO CONTROL L: PLAY, REC, CUE, REVIEW
CM FWD E17 51 → CAPSTAN MOTOR CONT 0/1 FWD, 1/0 REV, 1/1 STOP
CM REV E16 50 →
PAL/NT E15 49 → PAL/NTSC SELECT L: NTSC, H: PAL
TEST 1 E14 48 — NC
TEST 2 E13 47 —
3 HEAD E12 46 ← 240/270MODEL: GND, 220MODEL: OPEN
V.F.P E11 45 → VIDEO FRONT PULSE OUT
TV/VIDEO E10 44 → ANNTENA SELECT L: VIDEO, H: TV
LED REC E9 43 → FUNCTION LED CONTROL
PLAY E8 42 →
REW E7 41 →
VIDEO E6 40 →
SLP * E5 39 →
SP E4 38 →
TIMER E3 37 →
F.FWD E2 36 →
PAUSE E1 35 → NC
T.MUTE E0 34 → TUNER MUTE CONTROL
SO 33 → SERIAL DATA OUT FOR OPERATION IC (MB 88525)
* : NTSC MODEL ONLY

MB88551-256N [OPERATION CPU (C·MOS 8K)]

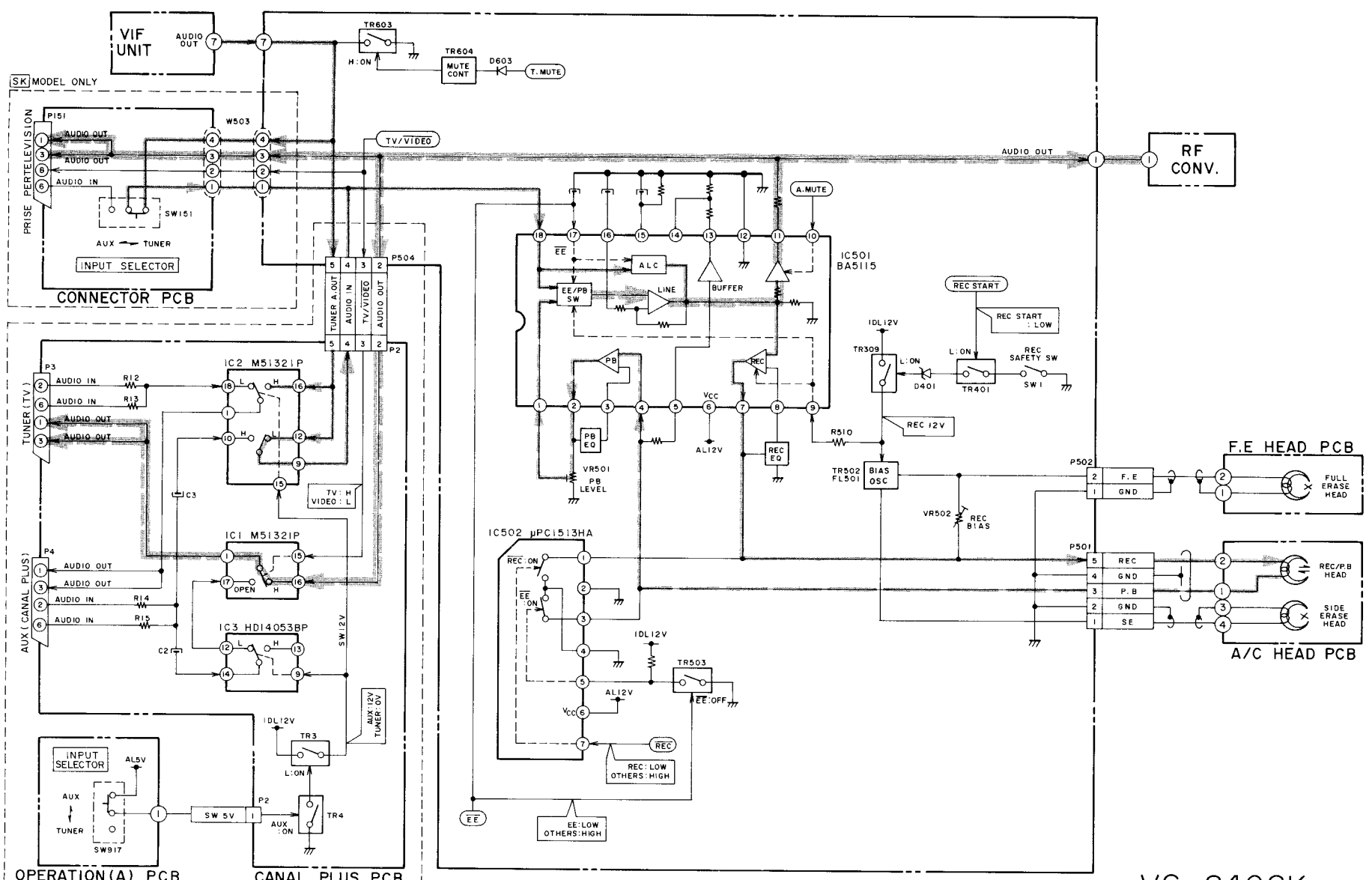
Pin No.	Symbol	Remarks
1.	S1/0	Serial data input from Syscon CPU
2.	$\overline{SPM}$	Speed mode input L:SP, H:SP/SLP
3.	$\overline{SDA}$	NC
4.	$\overline{SW\ SLP}$	Speed selector input L:SLP, H:SP
5.	DI0,I/04	Data IN/OUT, Connect D/A converter, NVRAM
6.	DI1,I/03	
7.	DI2,I/02	
8.	DI3,I/01	
9.	OPEN	NC
10.	AV_{SS}	A/D converter ground
11.	AVR-	A/D converter minus ref. voltage
12.	AV_{CC}	A/D converter V_{CC}
13.	A6,KOT2	NVRAM address output/ key scan pulse output
14.	A5,KOT3	
15.	A0,KOT0	
16.	A1 KOT1	
17.	A2	NVRAM address output
18.	A3	
19.	A4	
20.	A7	
21.	KIN3	Key scan input
22.	KIN2	
23.	KIN1	
24.	KIN0	
25.	VPS AUTO	NC
26.	$\overline{RC}$	NVRAM Recall L:Recall, H:don't care
27.	MEMO 1	MEMO LED control L:Lit
28.	MEMO 2	
29.	$\overline{PRESET}$	PRESET, BAND SELECT SLIDE switch input (low active)
30.	$\overline{NORMAL}$	
31.	$\overline{BAND\ 1}$	
32.	$\overline{BAND\ 2}$	
33.	OPEN	NC
34.	V_{CC}	+B
35.	DAVN	NC
36.	NC (EI)	NC
37.	SW KE1	Scan pulse output
38.	SW KE2	
39.	$\overline{PAUSE}$	PAUSE LED control
40.	$\overline{U}$	Tuner band out L:ON, H:OFF
41.	$\overline{VH}$	
42.	$\overline{VL}$	
43.	$\overline{TUNER}$	Tuner ON/OFF control L:ON, H:OFF
44.	B/$\overline{V}$	Black picture control L:VIDEO, H:Black picture
45.	AFC	Tuner AFC control L:ON, H:OFF
46.	T.MUTE	Tuner mute control L:OFF,H:ON
47.	DGT 1	7 Segment LED control
48.	DGT 2	
49.	NC	
50.	NC	
51.	SEG b	
52.	SEG g	
53.	SEG a	
54.	SEG d	
55.	SEG e	
56.	SEG c	
57.	SEG f	
58.	E23	NC
59.	EX	EXT X'tal terminal
60.	X	
61.	$\overline{RESET}$	System reset input
62.	$\overline{X}$	Inverted oscillater output
63.	DATA	Control data output for IMS IC
64.	E25	NC
65.	CLK	Serial clock output
66.	$\overline{IRQ}$	Remote control input
67.	E28	NC
68.	START	Power down detector input L:Power down H:don't care
69.	E30	NC
70.	E31	NC
71.	V_{SS}	Ground
72.	SCL	NC
73.	OPEN	NC
74.	SO/I	Serial data output, connect syscon CPU
75.	SC	Clock signal output connect syscon CPU
76.	LDI	D/A converter control clock output
77.	$\overline{ST}$	NVRAM store control L:Store, H:don't care
78.	$\overline{STB\ PD}$	IMS IC data store output
79.	$\overline{CS\ MB}$	NVRAM chip select L:Select, H:don't care
80.	$\overline{WE}$	NVRAM write enable L:Write, H:Read

μPD6105C-002 (CHARACTOR GENERATOR)

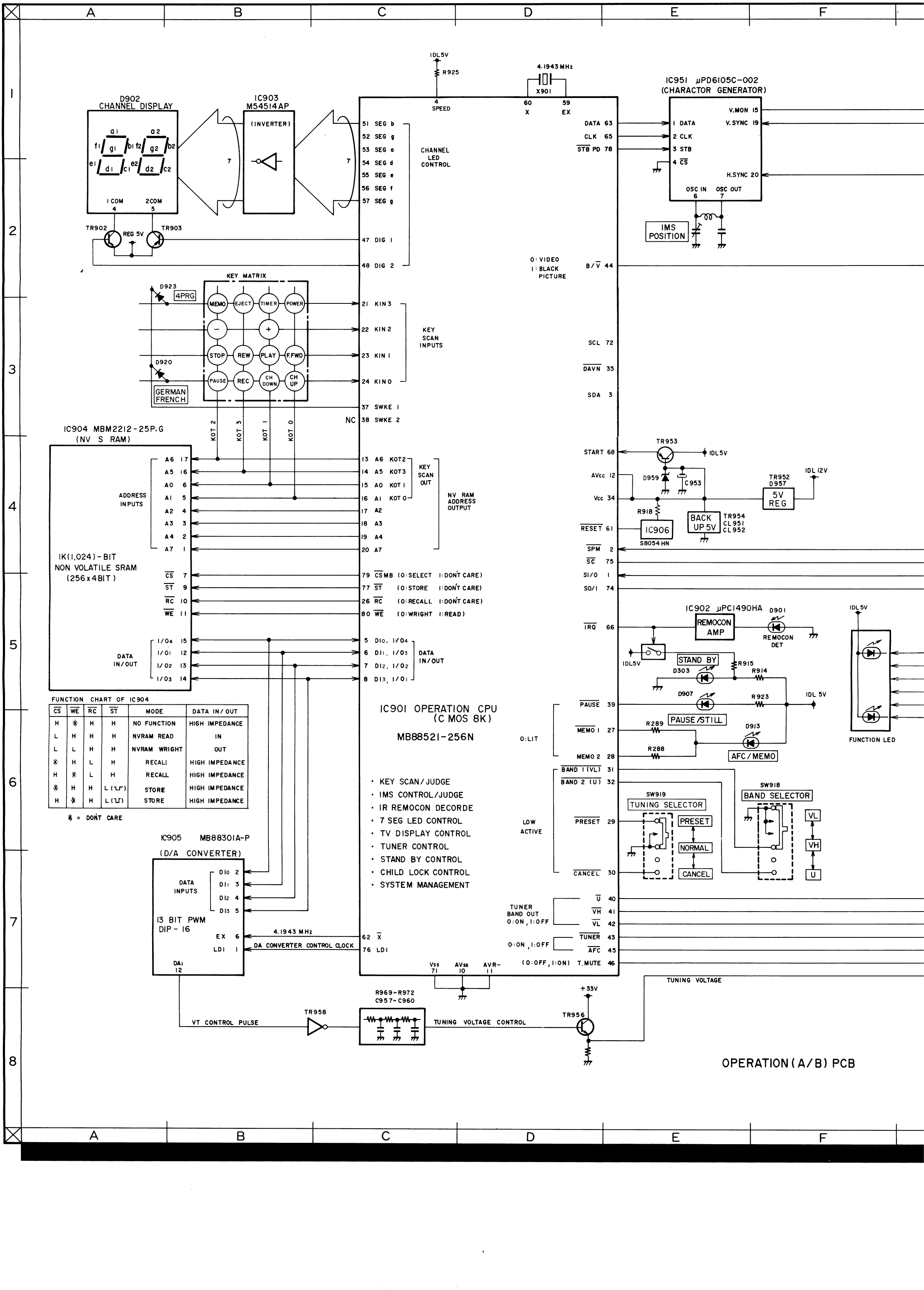


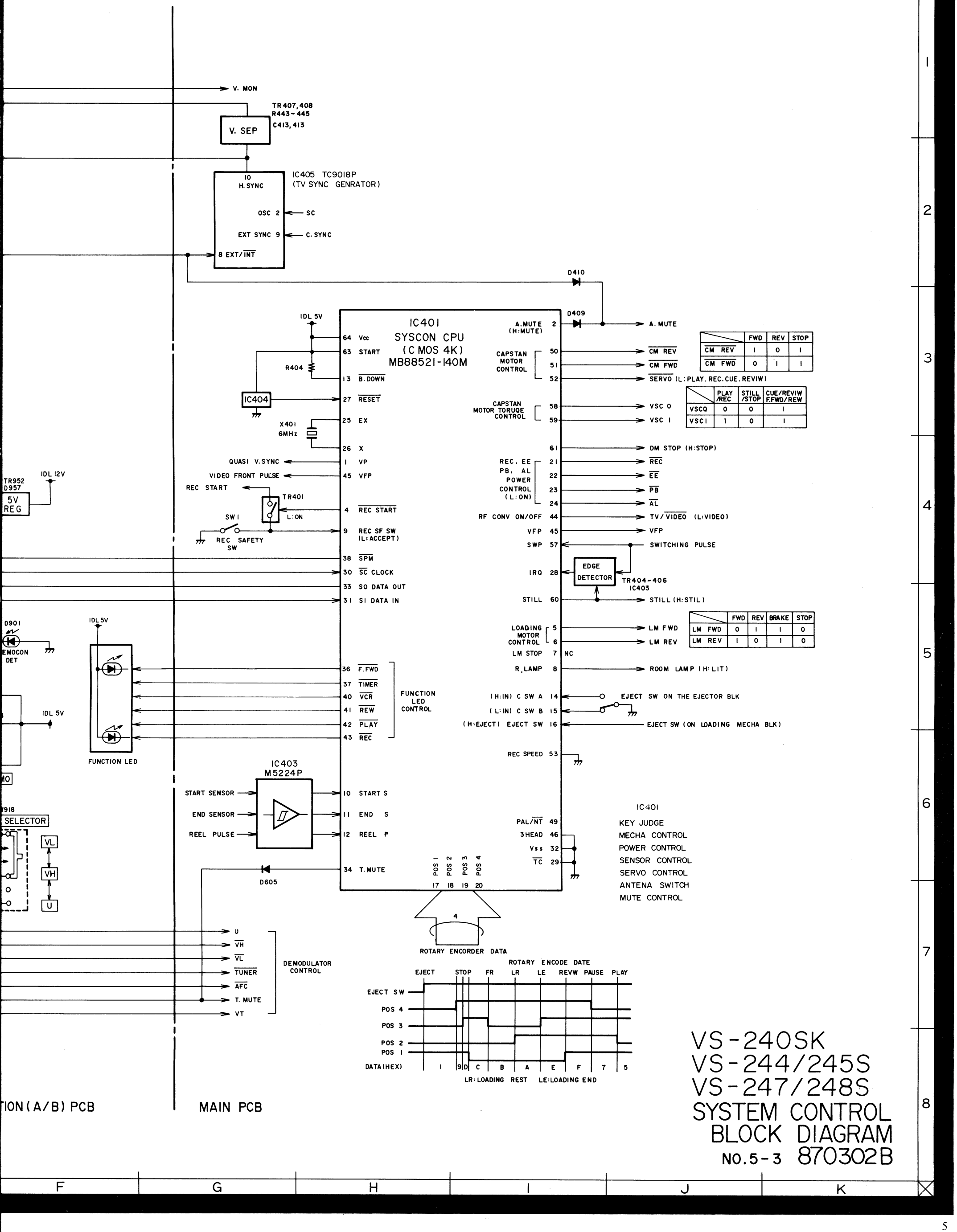


VS-240SK
VS-244/245S
VS-247/248S
POWER
BLOCK DIAGRAM
NO. 5-1 870501A



VS-240SK
VS-244/245S
VS-247/248S
AUDIO
BLOCK DIAGRAM
NO. 5-2 870502A


D902
CHANNEL DISPLAY
a1 a2 f1 g1 b1 f2 g2 b2 e1 d1 c1 e2 d2 c2
1 COM 4
2COM 5
TR902
REG 5V
TR903
IC903
M54514AP
(INVERTER)
7
7
IDL5V
R925
4
SPEED
4.1943 MHz
X901
60
X
59
EX
51 SEG b
52 SEG g
53 SEG a
54 SEG d
55 SEG e
56 SEG f
57 SEG g
CHANNEL LED CONTROL
47 DIG 1
48 DIG 2
IC951 µPD6105C-002
(CHARACTOR GENERATOR)
DATA 63
CLK 65
STB PD 78
1 DATA
2 CLK
3 STB
4 CS
V.MON 15
V.SYNC 19
H.SYNC 20
OSC IN 6
OSC OUT 7
IMS POSITION
0: VIDEO
1: BLACK PICTURE
B/V 44
KEY MATRIX
D923
4PRG
MEMO
EJECT
TIMER
POWER
−
+
STOP
REW
PLAY
F.FWD
D920
GERMAN FRENCH
PAUSE
REC
CH DOWN
CH UP
21 KIN3
22 KIN2
23 KIN1
24 KIN0
KEY SCAN INPUTS
37 SWKE 1
NC 38 SWKE 2
KOT 2
KOT 3
KOT 1
KOT 0
IC904 MBM2212-25P.G
(NV S RAM)
ADDRESS INPUTS
A6 17
A5 16
A0 6
A1 5
A2 4
A3 3
A4 2
A7 1
1K(1,024)-BIT
NON VOLATILE SRAM
(256x4BIT)
13 A6 KOT2
14 A5 KOT3
15 A0 KOT1
16 A1 KOT0
KEY SCAN OUT
17 A2
18 A3
19 A4
20 A7
NV RAM ADDRESS OUTPUT
CS 7
ST 9
RC 10
WE 11
79 CSMB (0:SELECT 1:DON'T CARE)
77 ST (0:STORE 1:DON'T CARE)
26 RC (0:RECALL 1:DON'T CARE)
80 WE (0:WRIGHT 1:READ)
DATA IN/OUT
I/O4 15
I/O1 12
I/O2 13
I/O3 14
5 DI0, I/O4
6 DI1, I/O3
7 DI2, I/O2
8 DI3, I/O1
DATA IN/OUT
FUNCTION CHART OF IC904
CS WE RC ST MODE DATA IN/OUT
H * H H NO FUNCTION HIGH IMPEDANCE
L H H H NVRAM READ IN
L L H H NVRAM WRIGHT OUT
* H L H RECALL HIGH IMPEDANCE
H * L H RECALL HIGH IMPEDANCE
* H H L (↓) STORE HIGH IMPEDANCE
H * H L (↓) STORE HIGH IMPEDANCE
* = DON'T CARE
IC905 MB88301A-P
(D/A CONVERTER)
DATA INPUTS
DI0 2
DI1 3
DI2 4
DI3 5
13 BIT PWM
DIP-16
EX 6
LDI 1
DA1 12
4.1943 MHz
DA CONVERTER CONTROL CLOCK
62 X
76 LDI
IC901 OPERATION CPU
(C MOS 8K)
MB88521-256N
• KEY SCAN/JUDGE
• IMS CONTROL/JUDGE
• IR REMOCON DECORDE
• 7 SEG LED CONTROL
• TV DISPLAY CONTROL
• TUNER CONTROL
• STAND BY CONTROL
• CHILD LOCK CONTROL
• SYSTEM MANAGEMENT
Vss 71
AVss 10
AVR- 11
START 68
AVcc 12
Vcc 34
RESET 61
SPM 2
SC 75
SI/O 1
SO/I 74
TR953
IDL5V
D959
C953
TR952
D957
5V REG
IDL 12V
R918
IC906
S8054 HN
BACK UP 5V
TR954
CL951
CL952
IC902 µPC1490HA
REMOCON AMP
D901
REMOCON DET
IRQ 66
IDL5V
STAND BY
D303
R915
R914
D907
R923
IDL 5V
PAUSE 39
PAUSE/STILL
MEMO 1 27
MEMO 2 28
R289
R288
D913
AFC/MEMO
0:LIT
FUNCTION LED
BAND 1 (VL) 31
BAND 2 (U) 32
PRESET 29
CANCEL 30
LOW ACTIVE
SW919
TUNING SELECTOR
PRESET
NORMAL
CANCEL
SW918
BAND SELECTOR
VL
VH
U
U 40
VH 41
VL 42
TUNER BAND OUT 0:ON, 1:OFF
TUNER 43
AFC 45
0:ON, 1:OFF
T.MUTE 46
(0:OFF, 1:ON)
SCL 72
DAVN 35
SDA 3
TUNING VOLTAGE
+33V
R969~R972
C957~C960
TR958
TR956
VT CONTROL PULSE
TUNING VOLTAGE CONTROL
OPERATION (A/B) PCB



	FWD	REV	STOP
CM REV	1	0	1
CM FWD	0	1	1

	PLAY /REC	STILL /STOP	CUE/REVIW F.FWD/REW
VSCQ	0	0	1
VSC1	1	0	1

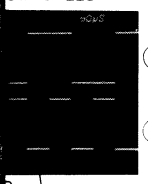
	FWD	REV	BRAKE	STOP
LM FWD	0	1	1	0
LM REV	1	0	1	0

VS-240SK
VS-244/245S
VS-247/248S
SYSTEM CONTROL BLOCK DIAGRAM
NO.5-3 870302B

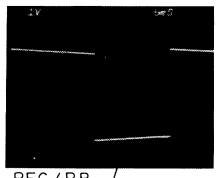
DM FG
REC/PB
f s c
REC/PB
DM PG
PB
V SYNC
REC/PB
SWITCHING PULSE
REC/PB
③ CM PHASE
② CM SPEED
REC/PB
⑫ DM PHASE
⑬ DM SPEED
REC/PB
REC/PB
DM FG
REC/PB
TRACKING
REC/PB
CTL
PB
CM FG
REC/PB
CTL
REC
CTL AMP OUT
PB
DRUM MOTOR BLOCK SM-240
REG 16V
IC 1 BA6413 DRUM MOTOR DRIVER
CONT. AMP
φ1 HALL AMP
φ2 HALL AMP
φ1 AMP & DRIVER
φ2 AMP & DRIVER
GND
AL 5V
HD 1
HD 2
L2
12POLES
PG
FG
TR 1
IC 2
P1
P201
P GND
REG 16V
DM PG
GND
AL 5V
DM CTL
DM FG
REG16V
AL 5V
IC204(2/2)
OPERATION PCB
STILL TRK
P953
STILL TRACKING
VR903
AL 5V
EXT TRACKING
VR902
P953
4
TRK
P407
TRACKING PRESET
VR202
REC CTL
CTL HEAD
P202
CTL
GND
CTL AMP
CTL GND
18
6 STILL TRK
P407
CAPSTAN MOTOR
P203
FG +
CM +
CM −
FG −
IC 205 LA6358
IC203 AN3794 (CAPSTAN INTERFACE)
VCC
I/M
I/N
COUNTER
GAIN SELECT
OUTPUT SELECTOR
"VSC 1" FROM IC401 PIN 59
R246
AL5V
R244
R245
R243
C239
TR204
STILL ON
AL 5V
R242
TR203
REF VOLTAGE
IC205 LA6358
STILL ON
TR205
D204
STILL
SERVO
D203
REG16V
CURRENT LIMIT
IC206 M54548L
(CAPSTAN MOTOR DRIVE)
R269
AL 5V
R267
C25
VS
MODE DET.
S3
S2
S1
R265
D202
AL5V
R266
VCC
VI
MOTOR DRIVE
O2
O1
CM(−)
CM(+)
R255
C244
R214,215
C211,212
LPF
CM SPEED ERROR
R213
R220, C215, 216
PHASE COMPENSATOR
R216
LPF
CM PHASE ERROR
R218,219
C213,214
IC 207 (2/2)
8A235
TR206
TR207
CTL
CTL
MM2
CR
C
T
OUT
Vcc
9
8
7
6
IC202 MN6178XAL
(DIGITAL SERVO)
MODE GENERATOR
MODE
TEST
VSS
SWITCHING PULSE
SWP
"V SYNC" FROM TR19 CORRECTOR
"fsc" FROM TR106 EMITTER
REF PULSE GEN
REF PULSE
PB
SLOW
DM TIMING CONT
PHASE COMP
PWM (D/A)
DM PHASE ERROR
SPEED COMP
DM SPEED ERROR
"REC START 12V" FROM TR309 CORRECTOR
D207 HZ5-B1
R212
DM FG
TRACKING SIGNAL
P.B
REC
REF OSC
CTL PULSE
CTL COUNT DOWN
CM TIMING CONT
PG COUNT DOWN
FG COUNT DOWN
1/2
CAPSTAN FG
V SYNC 2 OUT
R212
LPF
DRUM MOTOR SPEED
DRUM MOTOR PHASE
DRUM MOTOR CONTROL
CAPSTAN MOTOR SPEED
CAPSTAN MOTOR PHASE
CAPSTAN MOTOR CONTROL
REC / PB
CM FG
REC/PB
DC2.7V
REC/PB
DC2.7V
REC/PB

DM PHASE

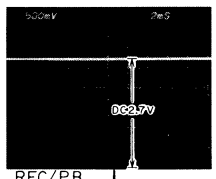
DM SPEED



V SYNC 2



REC/PB



REC/PB

AL

R212

REC START 12V — FROM TR309 CORRECTOR

$\overline{PB}$ — FROM IC401 PIN (23)

$\overline{CM\ FWD}$ — FROM IC401 PIN (51)

VSC 1 — FROM IC401 PIN (59)

VSC 0 — FROM IC401 PIN (58)

TEST

V_{SS}

PWM (D/A)

DM PHASE ERROR

LPF

PHASE COMPENSATOR

C223, 224, R226

C228

R231

MIX

IC204 LA6358

TR201

"DM STOP" FROM IC401 PIN (61)

H: DM STOP

PWM (D/A)

DM SPEED ERROR

LPF

PWM (D/A)

PHASE COMP

V SYNC 2 OUT

TR207

IC207(1/2) BA235

TR208

STILL

CR MM I

OUT

R260

$\overline{SERVO}$

TR210

H: ON

R214.215
C211.212

CM SPEED ERROR

LPF

$\overline{CM\ FWD}$

TR209

H: ON

CM PHASE ERROR

LPF

R218.219
C213.214

STILL

"STILL" FROM IC401 PIN (60)

$\overline{SERVO}$

R263

D205

TR211

H: ON

IC206 M54548L
(CAPSTAN MOTOR DRIVE)

"$\overline{CM\ REV}$" FROM IC401 PIN (50)

"$\overline{CM\ FWD}$" FROM IC401 PIN (51)

"$\overline{SERVO}$" FROM IC401 PIN (52)

MODE DET.

MOTOR DRIVE

CM(−)

CM(+)

TRUTH TABLE

INPUT			OUTPUT		VCC SELECT	MODE
S1	S2	S3	O_1	O_2		
L	L	L	"OFF" STATE	"OFF" STATE	—	STOP
L	L	H	H	L	VS	PLAY ⊕
L	H	L	L	H	VS	PLAY ⊖
L	H	H	H	L	V2	F.FWD(2)
H	L	L	L	H	V2	REW(2)
H	L	H	H	L	V1	F.FWD(1)
H	H	L	L	H	V1	REW(1)
H	H	H	L	L	VS	BRAKE

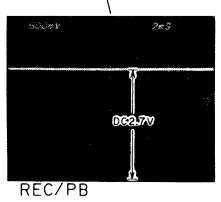
SYSCON CPU
IC401
MB88521-140M

(2) A MUTE
(4) $\overline{REC\ START}$
(21) $\overline{REC}$
(23) $\overline{PB}$
(50) $\overline{CM\ REV}$
(51) $\overline{CM\ FWD}$
(52) $\overline{SERVO}$

(57) SWITCHING PULSE
(58) VSC 0
(59) VSC 1
(60) STILL
(61) DM STOP

MODE \ TERMINAL	(51) $\overline{CM\ FWD}$	(50) $\overline{CM\ REV}$
FWD	L	H
REV	H	L
STOP	H	H

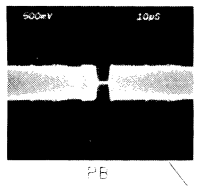
MODE \ CONTROL	VSC-0	VSC-1	$\overline{SERVO}$	$\overline{CM\ FWD}$	$\overline{CM\ REV}$
PLAY	H	L	L	L	H
CUE	H	H	L	L	H
REVIEW	H	H	L	H	L
STILL	H	H	H	H	H
F. FWD	H	H	H	L	H
REW	H	H	H	H	L



REC/PB

VS-240SK
VS-244/245S
VS-247/248S
SERVO BLOCK DIAGRAM

NO.5-4 870503A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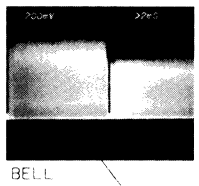
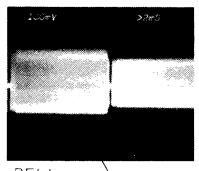

BELL FIL. IN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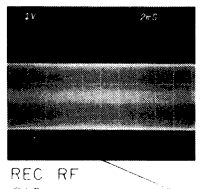
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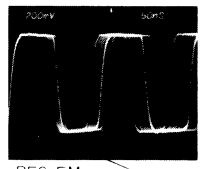
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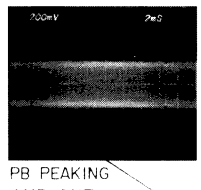
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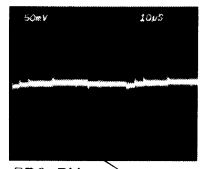
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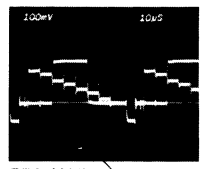
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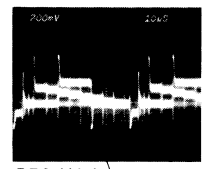
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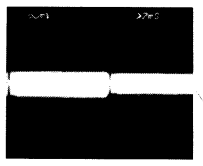
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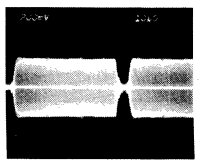

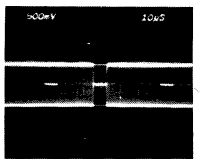
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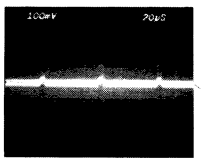
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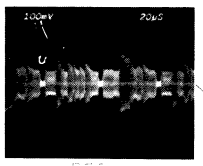
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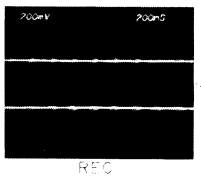
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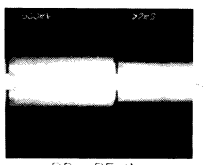
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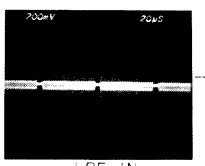
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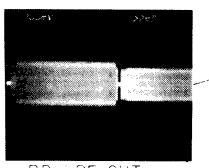
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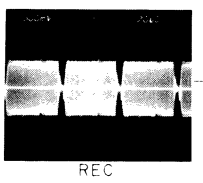
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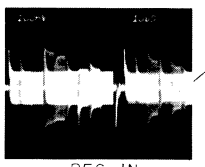
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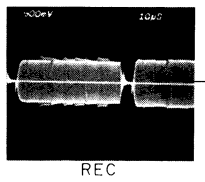
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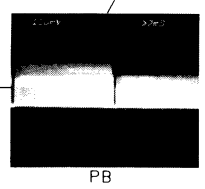
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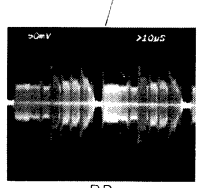
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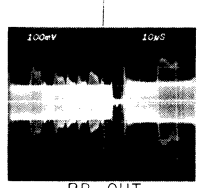
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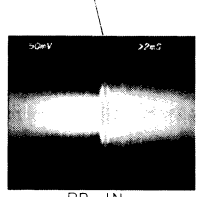
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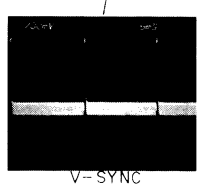
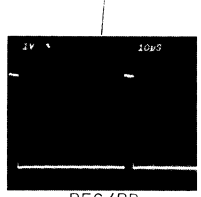
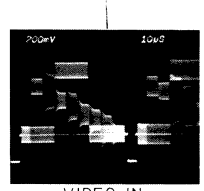
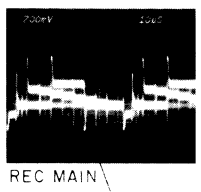

V-SYNC

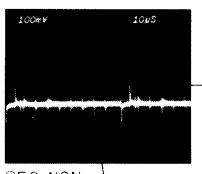

REC/PB C-SYNC


VIDEO IN

REC MAIN EMPHA I



REC NON-LINE EMPHA IN



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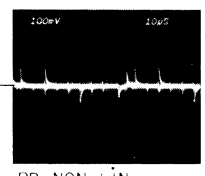
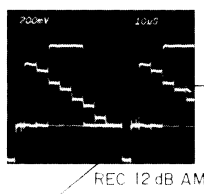


REC 12dB AMP OUT



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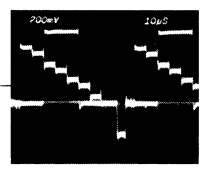

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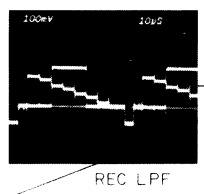

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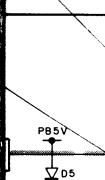
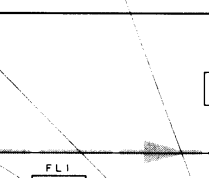
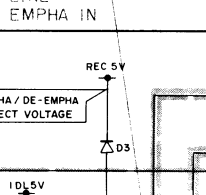




VIDEO IN



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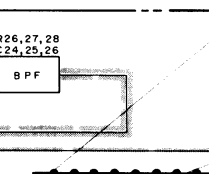

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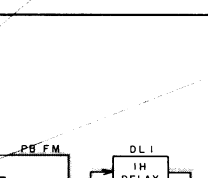
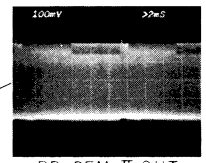


PB VIDEO OUT



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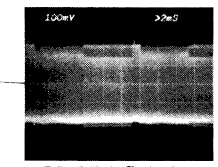
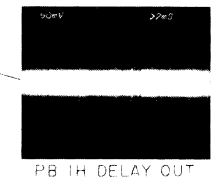
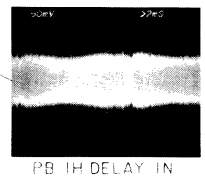


PB DEM I OUT



PB IH DELAY OUT



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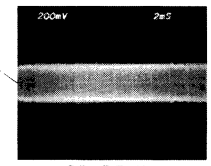
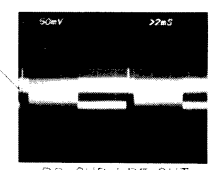


PB RF IN

PB SUB LPF OUT



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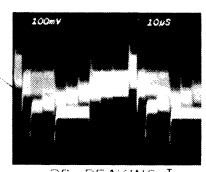

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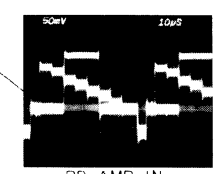
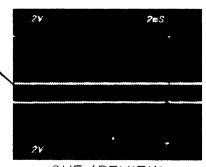


PB AMP IN



CUE / REVIEW

REC CHROMA SIGNAL LINE

P.B CHROMA SIGNAL LINE

REC Y SIGNAL LINE

P.B Y SIGNAL LINE

VS-240SK
VS-244/245S
VS-247/248S
BLOCK DIAGRAM

NO. 5-5 870504A

	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3F553X S	TEEF1-008A	S
VS-247/248S	MDLC3F553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

S MODEL ONLY

SK MODEL ONLY

DECODER

SORTIE POUR TV

PRISE TELEVISION

CANAL PLUS PCB
V1070B5020

CONNECTOR PCB V1070A501C

VTR TV OUT

ANT IN

RF OUT

RF CONVERTOR

AUDIO IN

AL 5V

VIDEO IN

IDL 5V

ER	VIF
08A	S
04A	S
08A SK	SK

A/C HEAD PCB V1047D5150

REC/PB

SIDE ERASE

CTL
HLVMLA1004C

FULL ERASE

HVFMD0005A

FE HEAD
PCB
V1047D5160

TRANS PCB V1069C5031(-B)

DRUM HEATER
TH701

AC220V
50Hz

IC1 BA6413

MOTOR PCB M3224D5010 SM-240

INDICATED VOLTAGE MEASURED ON PB MODE AND INDICATED WITH ( ) MARKS MEASURED ON REC MODE.

WARNING. ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

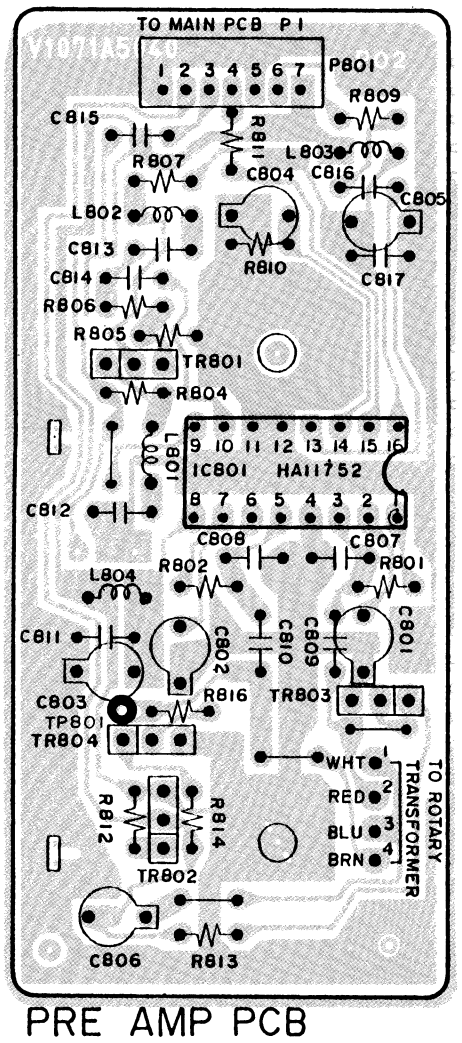
AVERTISSEMENT. ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

NOTE

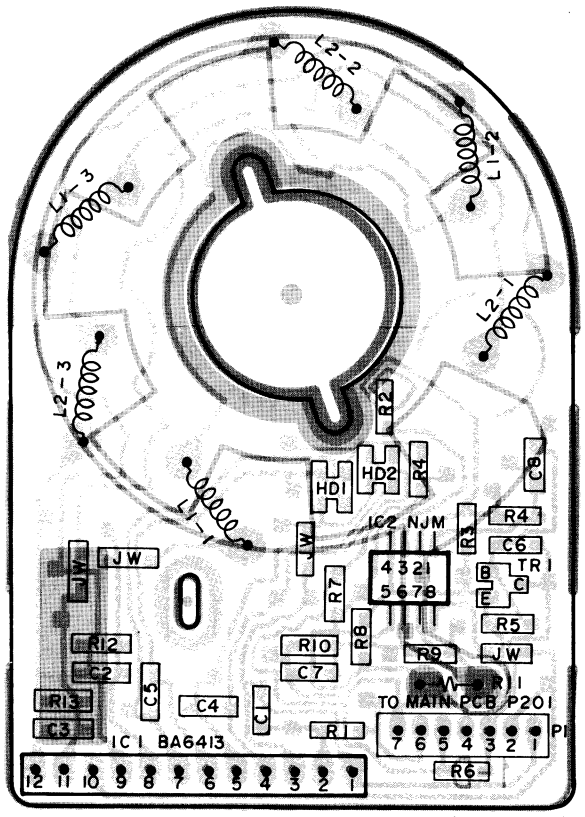
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

VS-240SK
VS-244/245S
VS-247/248S
CONNECTION DIAGRAM

NO. 5-1 870505A



PRE AMP PCB
V1071A5040(-A)



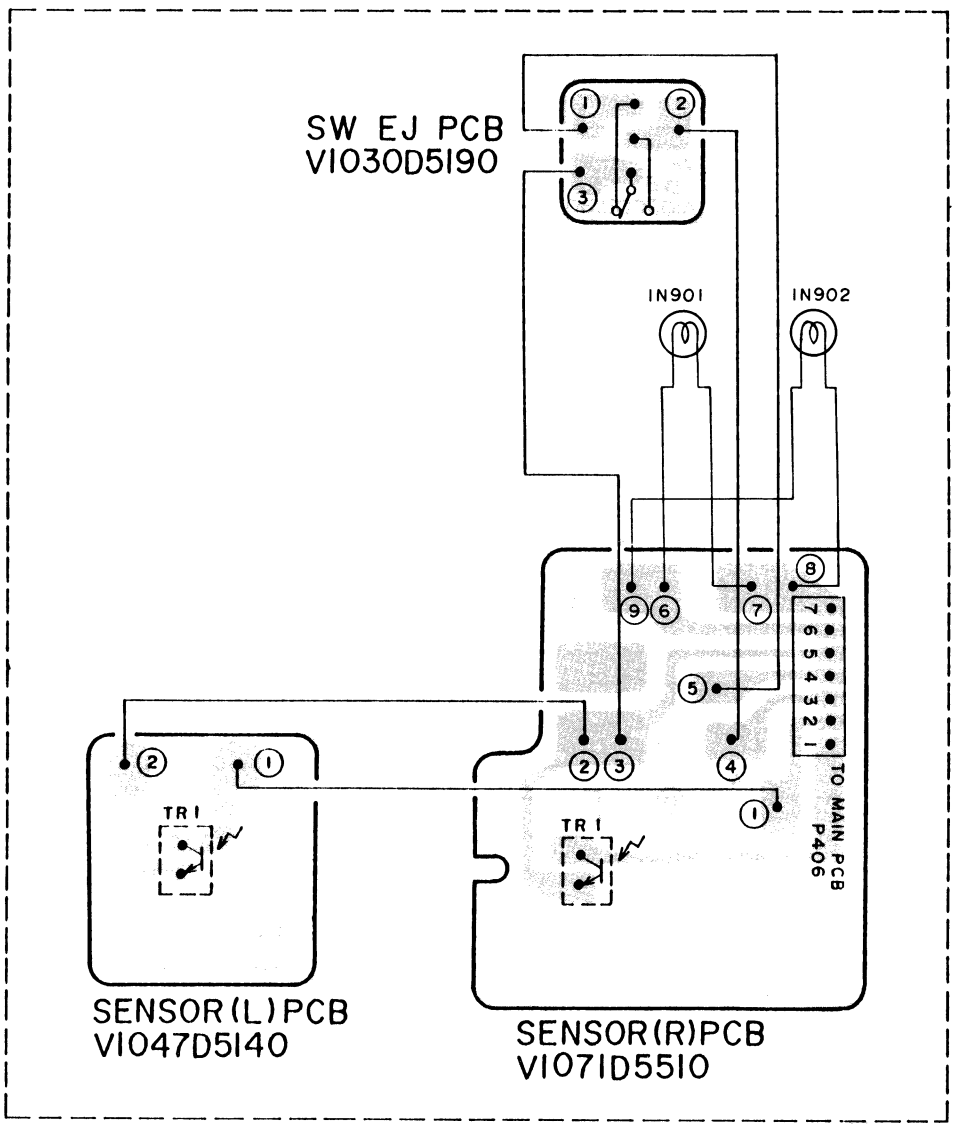
MOTOR PCB M3224D5010(SM-240)

JW = JAMPER WIRE

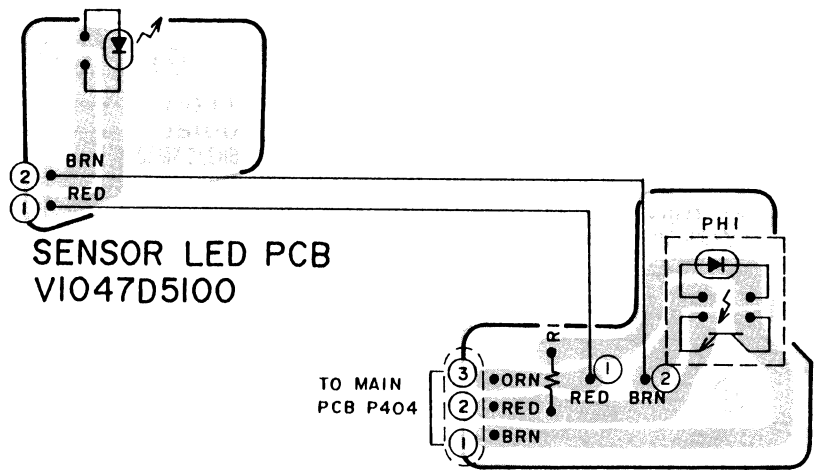
R1 = R1

C1 = C1

C B E = B C E

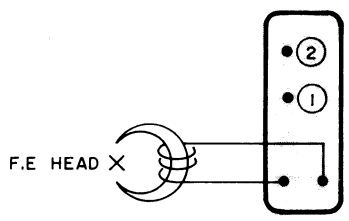


EJECTOR BLOCK

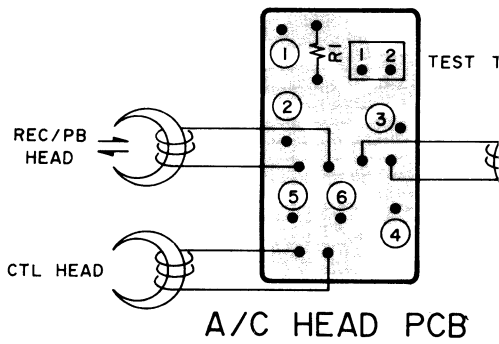


SENSOR LED PCB
V1047D5100

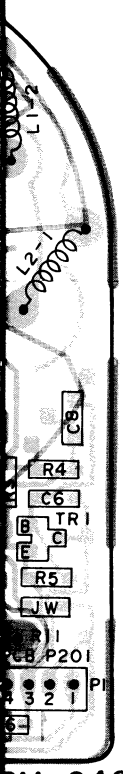
SENSOR REEL PCB
V1071D5500



F.E HEAD PCB
V1047D5160



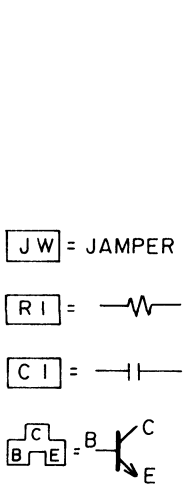
A/C HEAD PCB
V1047D5150



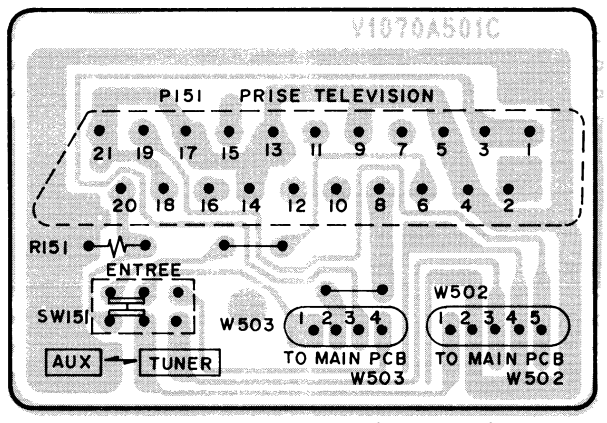
JW = JAMPER WIRE

RI = RI

CI = CI

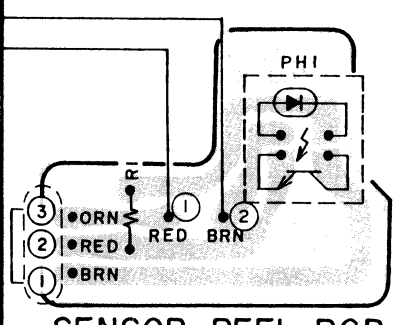


SM-240)

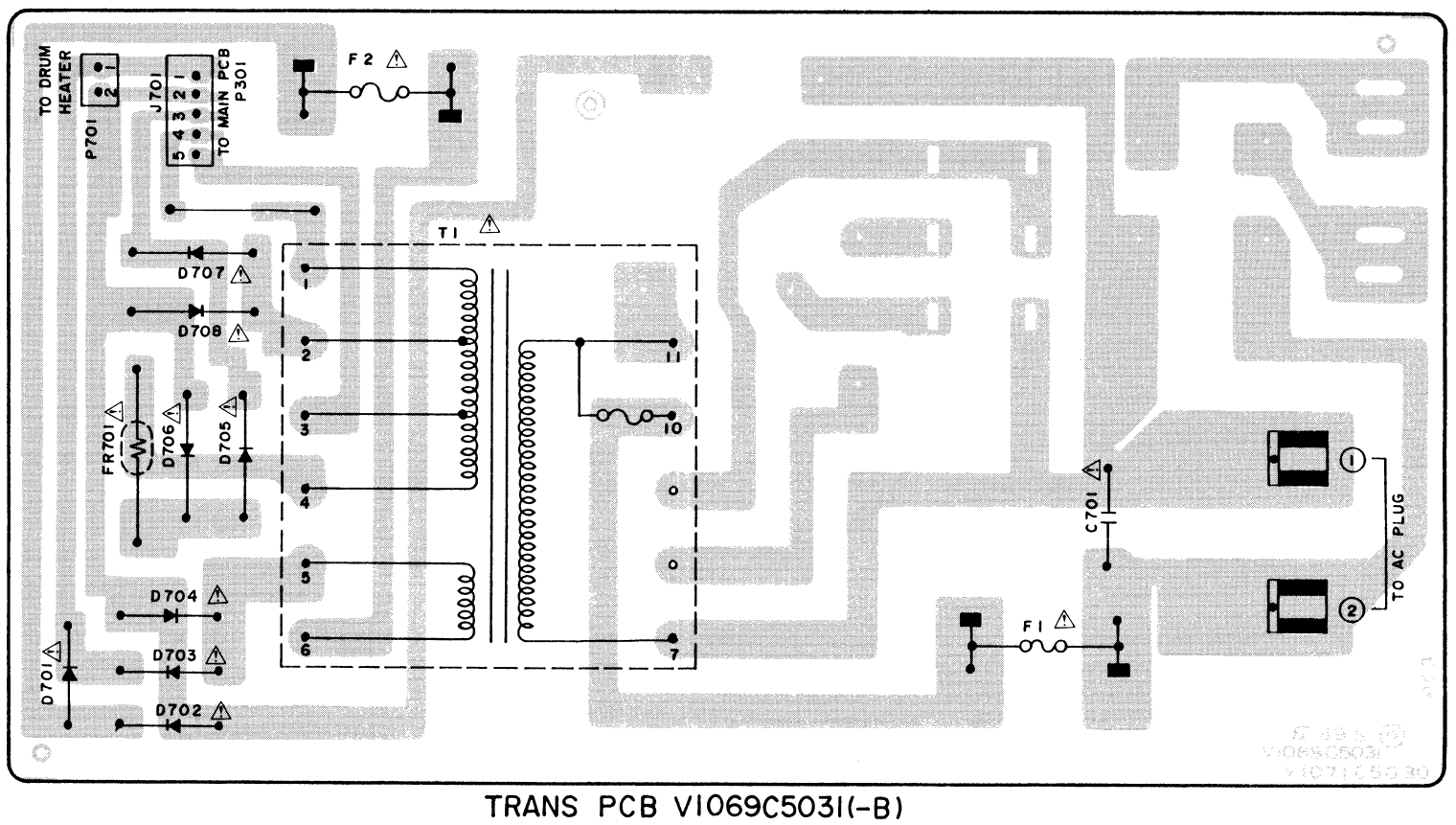


CONNECTOR PCB V1070A501C

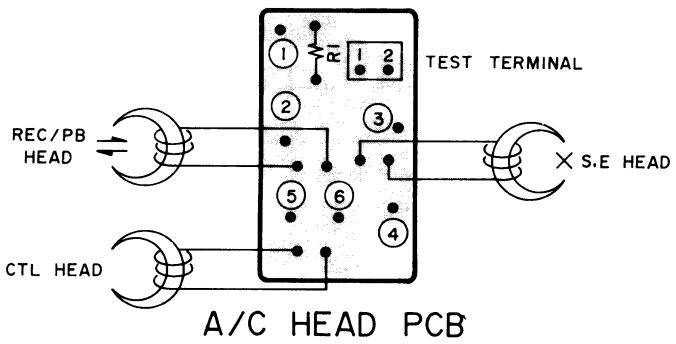
(SK MODEL ONLY)



SENSOR REEL PCB
V1071D5500



TRANS PCB V1069C5031(-B)



A/C HEAD PCB
V1047D5150

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

MAIN (VIDEO) PCB V1070A501B

08

VIDEO BLK ⟷ MAIN BLK

BA6229 (BI-DIRECTIONAL MOTOR DRIVER)

CONTROL MODE	INPUT 5pin	OUTPUT 6pin	2pin	10pin
STOP	L	L	OPEN	OPEN
NORMAL	H	L	H	L
REVERSE	L	L	L	H
BRAKE	H	H	L	H

07

MAIN PCB V1070A501A

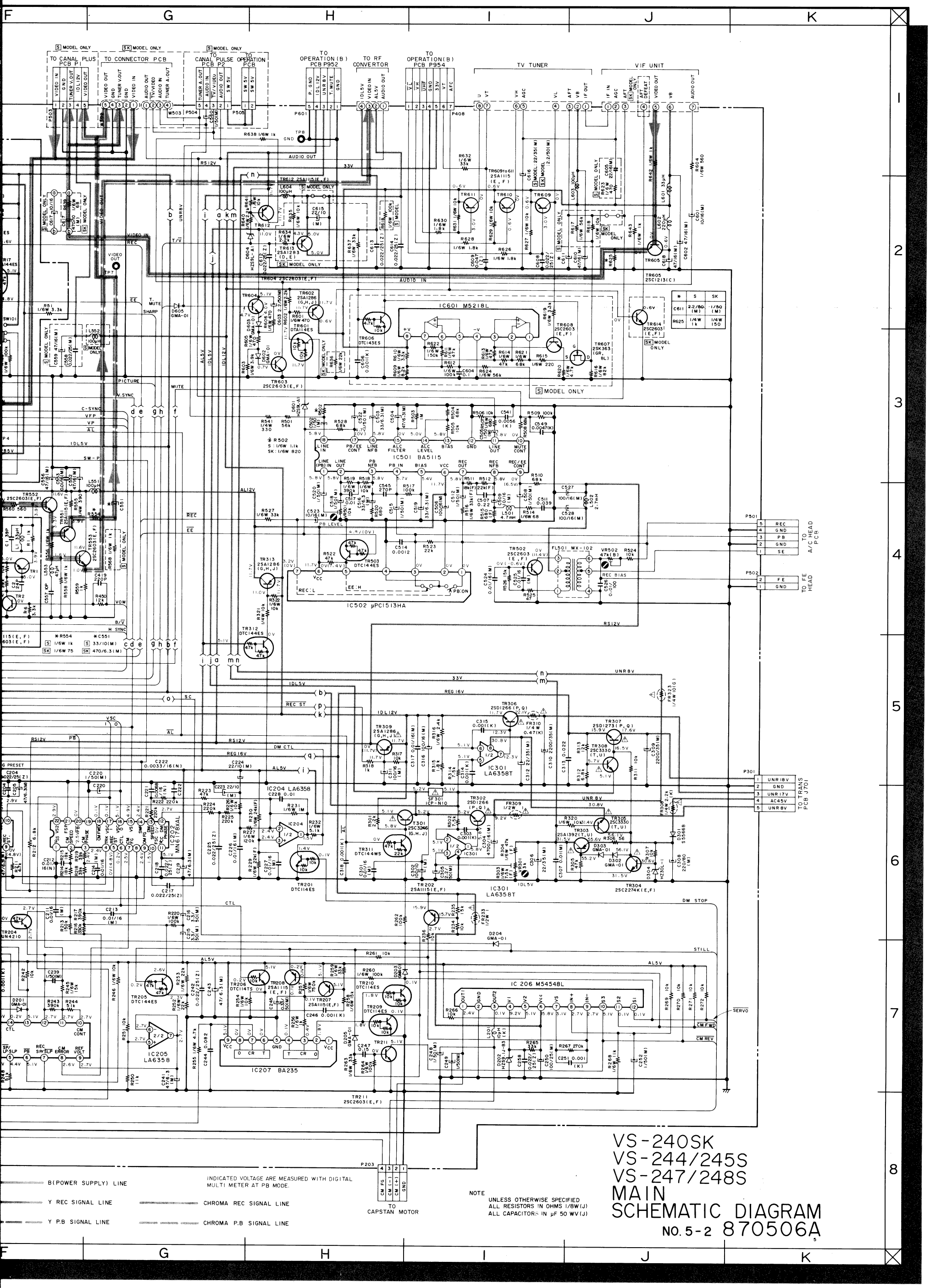
WARNING : Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT : Δ INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.

B(POWER SUPPLY)

Y REC SIGNAL LIN

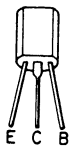
Y P.B SIGNAL LIN


TO CANAL PLUS PCB P1
TO CONNECTOR PCB
TO CANAL PULSE OPERATION PCB P2
TO OPERATION PCB
TO OPERATION(B) PCB P952
TO RF CONVERTOR
TO OPERATION(B) PCB P954
TV TUNER
VIF UNIT
IC501 BA5115
IC601 M5218L
IC502 μPC1513HA
IC301 LA6358T
IC204 LA6358
IC202 MN6178XAL
IC205 LA6358
IC207 BA235
IC206 M54548L
TO A/C HEAD PCB
TO FE HEAD
TO TRANS PCB U701
TO CAPSTAN MOTOR
VS-240SK
VS-244/245S
VS-247/248S
MAIN
SCHEMATIC DIAGRAM
NO.5-2 870506A
B(POWER SUPPLY) LINE
Y REC SIGNAL LINE
Y P.B SIGNAL LINE
CHROMA REC SIGNAL LINE
CHROMA P.B SIGNAL LINE
INDICATED VOLTAGE ARE MEASURED WITH DIGITAL MULTI METER AT PB MODE.
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN μF 50 WV(J)

DTA144ES
DTC114ES
DTC114TS
DTC143ES
DTC144ES
DTC144WS

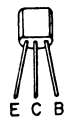
UN4119
UN4210

2SK363

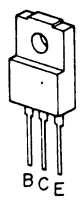


2SA1286
2SC3246

2SA1115
2SC2603
2SC3330



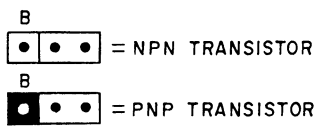
2SA1392
2SC1213
2SC2274K



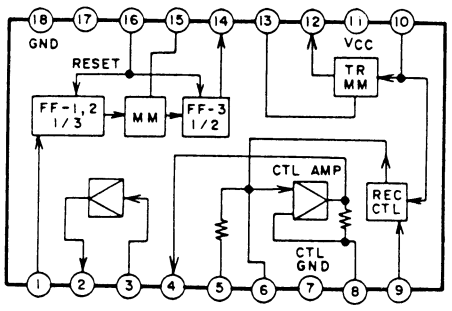
2SD1266
2SD1273

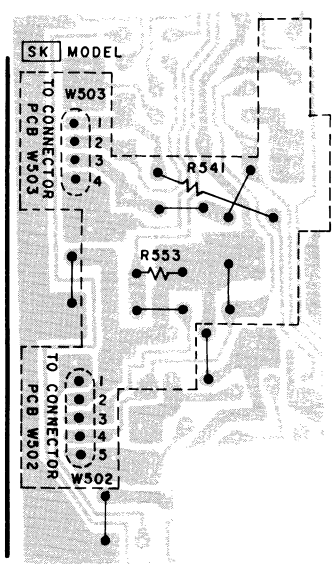
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

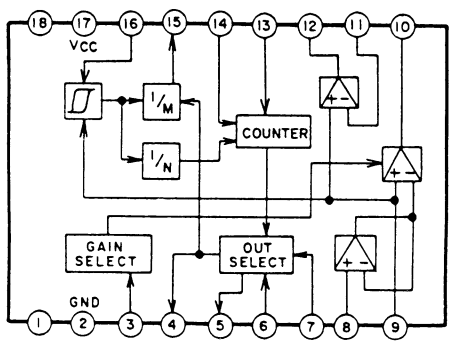


AN3792 (DRUM SERVO INTERFACE IC)

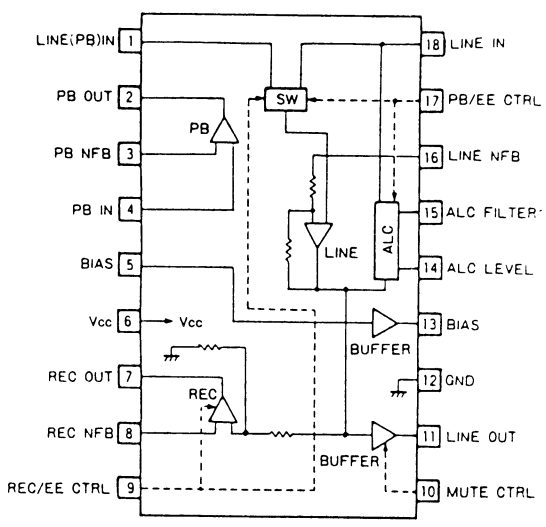




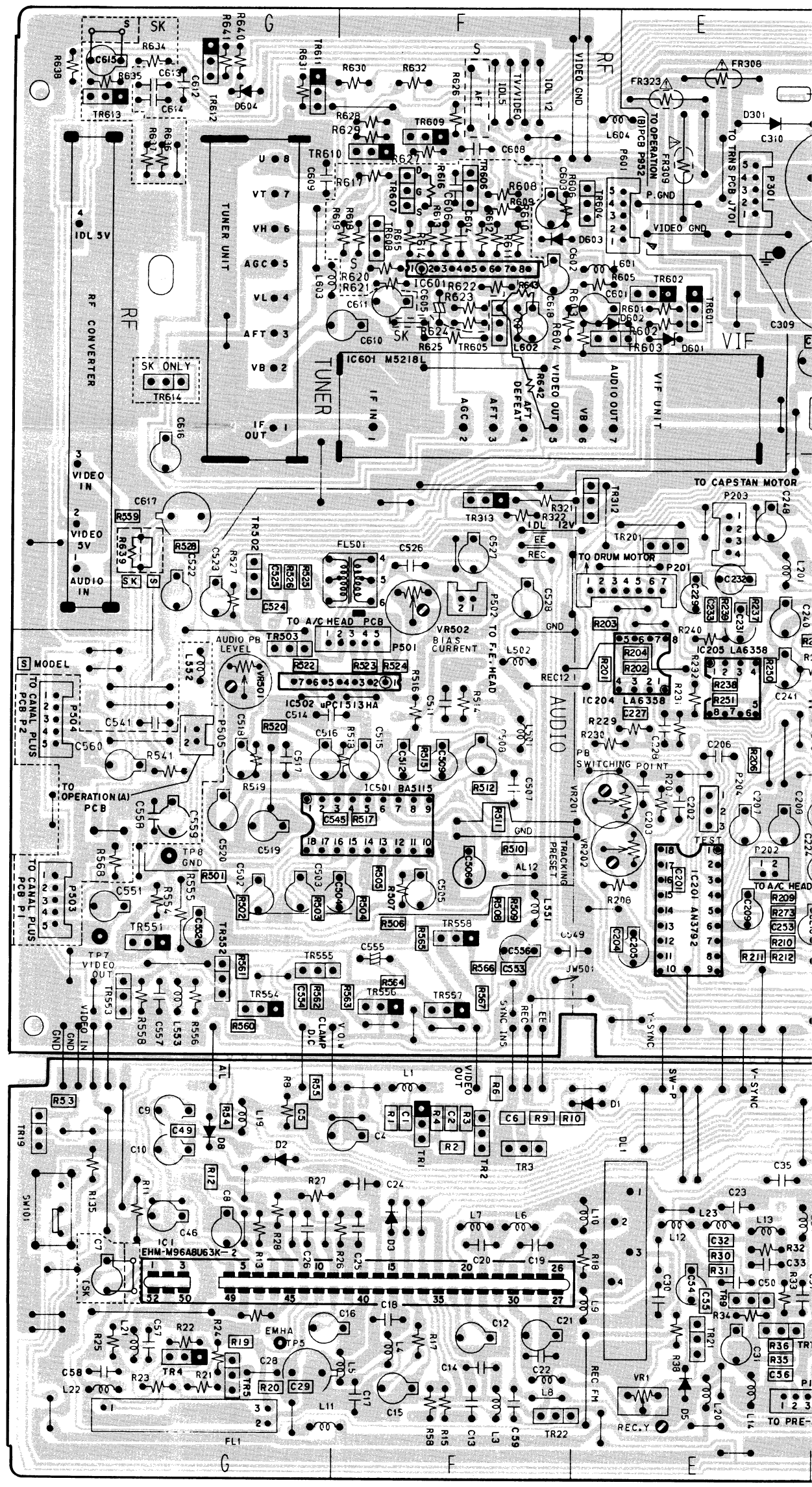
AN3794 (CAPSTAN SERVO INTERFACE IC)



BA5115 (SWITCHLESS REC/PB AMPLIFIER)

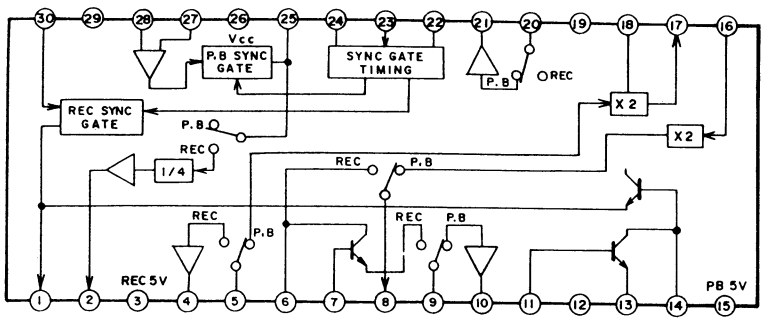


B/W
COLOR

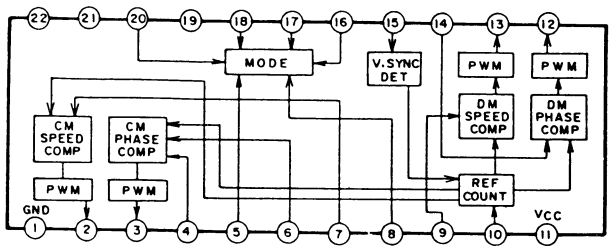


MAIN (VIDEO) PCB V1070A501B

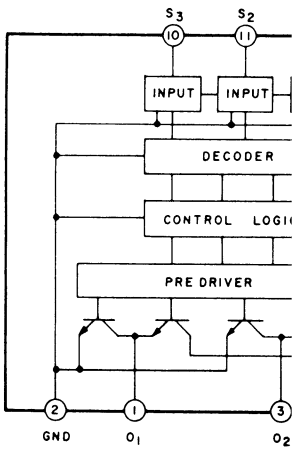
BA7107S (CHROMA SIGNAL PROCCESSING IC)



MN6178XAL (DIGITAL SERVO IC)



M54548L (CAPSTAN DI



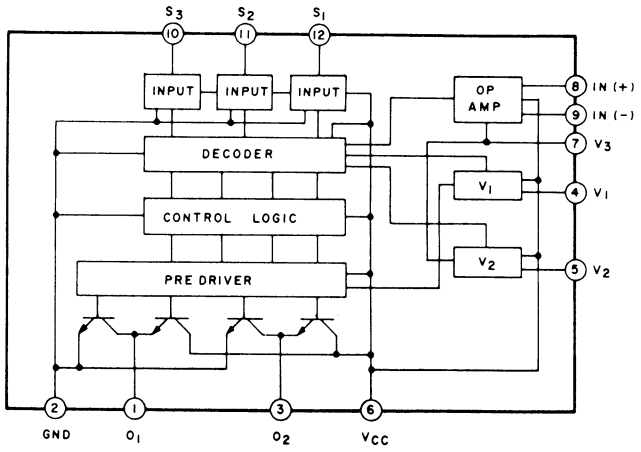
PRINCIPAL PARTS LOCATION

IC
IC1 . . . . . FG6
IC101. . . . AB6
IC201. . . . E4
IC202. . . . D4
IC203. . . . D3, 4
IC204. . . . E3
IC205. . . . E3
IC206. . . . D3
IC207. . . . C3
IC301. . . . CD1
IC401. . . . AB3
IC402. . . . B1, 2
IC403. . . . AB1
IC404. . . . A4
IC405. . . . B4
IC501. . . . FG4
IC502. . . . FG3
IC601. . . . F2

TRANSISTOR
TR1. . . . . F5
TR2. . . . . F5
TR3. . . . . F5
TR4. . . . . G6
TR5. . . . . G6
TR9. . . . . E6
TR10 . . . . E6
TR12 . . . . D6
TR13 . . . . D6
TR14 . . . . D6
TR15 . . . . D6
TR16 . . . . CD5, 6
TR17 . . . . C5, 6
TR19 . . . . G5
TR21 . . . . E6
TR22 . . . . EF6
TR101 . . . B6
TR102 . . . C6
TR103 . . . C6
TR104 . . . A5
TR105 . . . A6
TR106 . . . C5
TR107 . . . D6
TR201 . . . E3
TR202 . . . C3
TR203 . . . D3
TR204 . . . D3
TR205 . . . C3
TR206 . . . C3
TR207 . . . C4
TR208 . . . C3
TR209 . . . C3
TR210 . . . C3
TR211 . . . C3
TR301 . . . C1
TR302 . . . C1
TR303 . . . C1
TR304 . . . C1
TR305 . . . C1
TR306 . . . D1
TR307 . . . C2
TR308 . . . D2
TR309 . . . C2
TR311 . . . C2
TR312 . . . E2, 3
TR313 . . . F3
TR401 . . . A2
TR403 . . . A2
TR404 . . . A1
TR405 . . . A1
TR406 . . . A1
TR407 . . . AB4, 5
TR408 . . . A4, 5
TR409 . . . B2
TR502 . . . G3
TR503 . . . G3
TR551 . . . G4
TR552 . . . G4, 5
TR553 . . . G5
TR554 . . . G5
TR555 . . . FG4, 5
TR556 . . . F5
TR557 . . . F5
TR558 . . . F4
TR601 . . . E2
TR602 . . . E2
TR603 . . . E2
TR604 . . . E1
TR605 . . . F2
TR606 . . . F1
TR607 . . . F1
TR608 . . . F1, 2
TR609 . . . F1
TR610 . . . F1
TR611 . . . G1
TR612 . . . G1
TR613 . . . G1
TR614 . . . G2

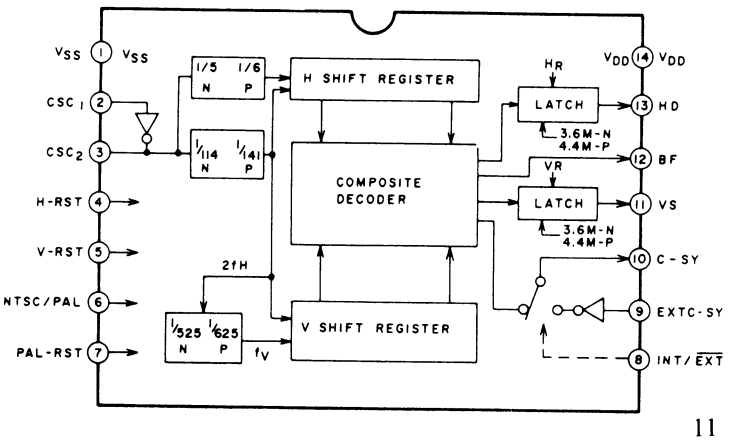
CONNECTOR
P1. . . . . DE6
P201 . . . . E3
P202 . . . . E4
P203 . . . . E3
P204 . . . . E4
P301 . . . . E1
P401 . . . . B2
P402 . . . . A3
P403 . . . . A3
P404 . . . . A2
P405 . . . . A3
P406 . . . . B1
P407 . . . . A2
P408 . . . . A2
P409 . . . . A3
P410 . . . . A3, 4
P411 . . . . B3
P501 . . . . FG3
P502 . . . . F3
P503 . . . . G4
P504 . . . . G3, 4
P505 . . . . G3, 4
P601 . . . . E1
W502 . . . . G4
W503 . . . . G3, 4

M54548L (CAPSTAN DRIVE IC)



INPUT			OUTPUT		Vcc SELECT	MODE
S_1	S_2	S_3	$\overline{O}_1$	$\overline{O}_2$		
L	L	L	"OFF" state	"OFF" state	–	STOP
L	L	H	H	L	Vs	PLAY (+)
L	H	L	L	H	Vs	PLAY (–)
L	H	H	H	L	V_2	FF (2)
H	L	L	L	H	V_2	REW (2)
H	L	H	H	L	V_1	FF (1)
H	H	L	L	H	V_1	REW (1)
H	H	H	L	L	Vs	BRAKE

TC9018P (TV SYNC GENERATOR)



09

IC904 MBM2212-25 P-G

IC905 MB88301AP

IC902 μPC1490HA
ABLC
LIMITER
DETECTOR
SHAPER

VR901 10k(B) PICTURE
VR902 100k(B) TRACKING
VR903 500k(B) STILL TRACKING

IC 901
MB88551-256N CRX PAL

IC906 S8054HN

IC903 M54514AP

TR901 DTA144ES
TR902 2SB643 (Q,R,S,T)
TR903 2SB643 (Q,R,S,T)

D902 18-402MB4

SW907 REC
SW908 REW
SW909 EJECT
SW905 PAUSE STILL
SW906 STOP
SW916 −
SW912 MEMO
SW903 CH. DOWN
SW904 PLAY
SW915 +
SW911 TIMER
SW901 CH UP
SW902 F.FWD
SW910 POWER
SW919 TUNING SELECTOR
PRESET
NORMAL
CANCEL
SW918 BAND SELECT
VL
VH
U

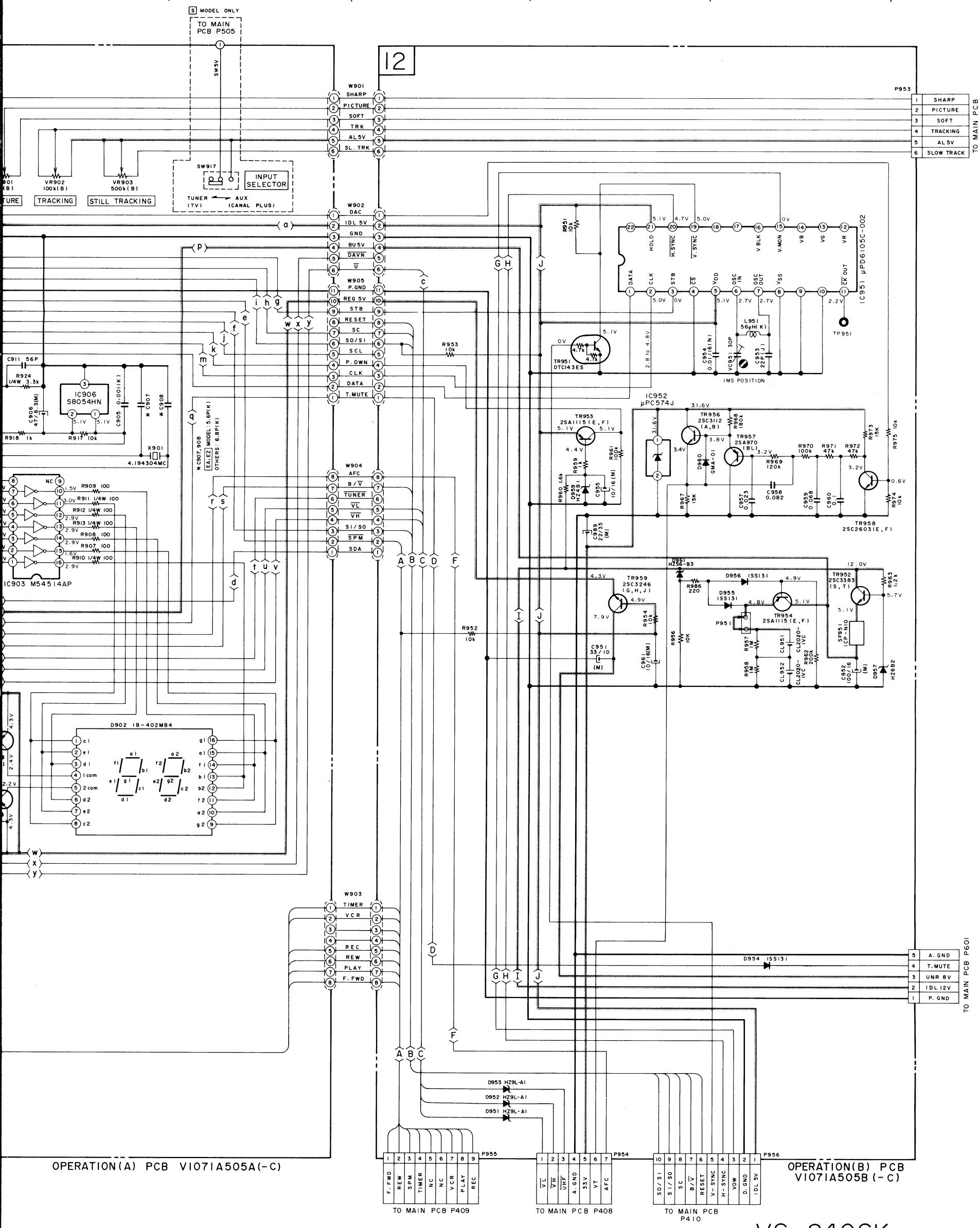
D913 BG5525S AFC/MEMO
D903 PR5505S STAND BY
D912 PR5505S TIMER
D911 PR5505S VCR
D908 PR5505S REC
D907 PR5505S PAUSE/STILL
D906 PR5505S REW
D905 BG5525S PLAY
D904 PR5505S F.FWD

TO MAIN PCB P411
P903
IDL 5V
GND

B(POWER SUPPLY) LINE

VOLTAGE MEASURED ON E

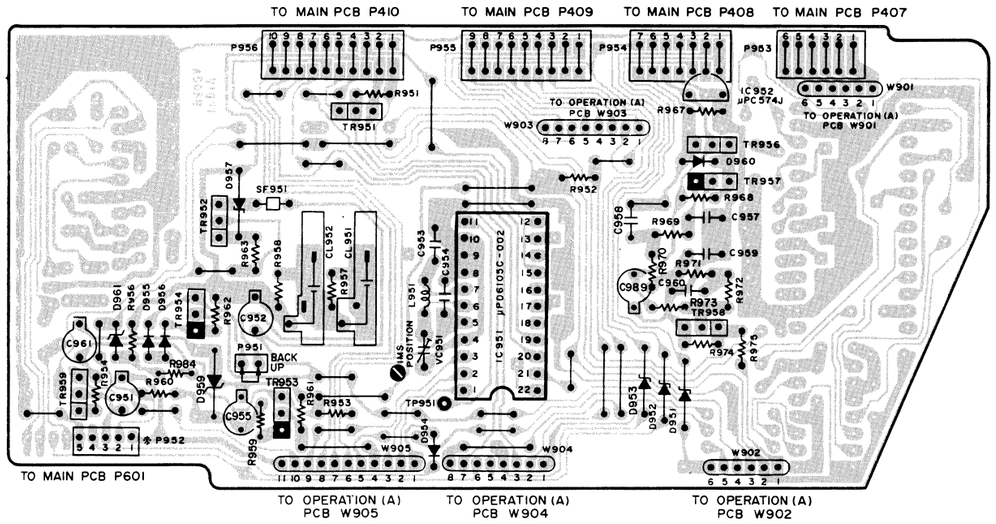
OPERATION(A) PCB V



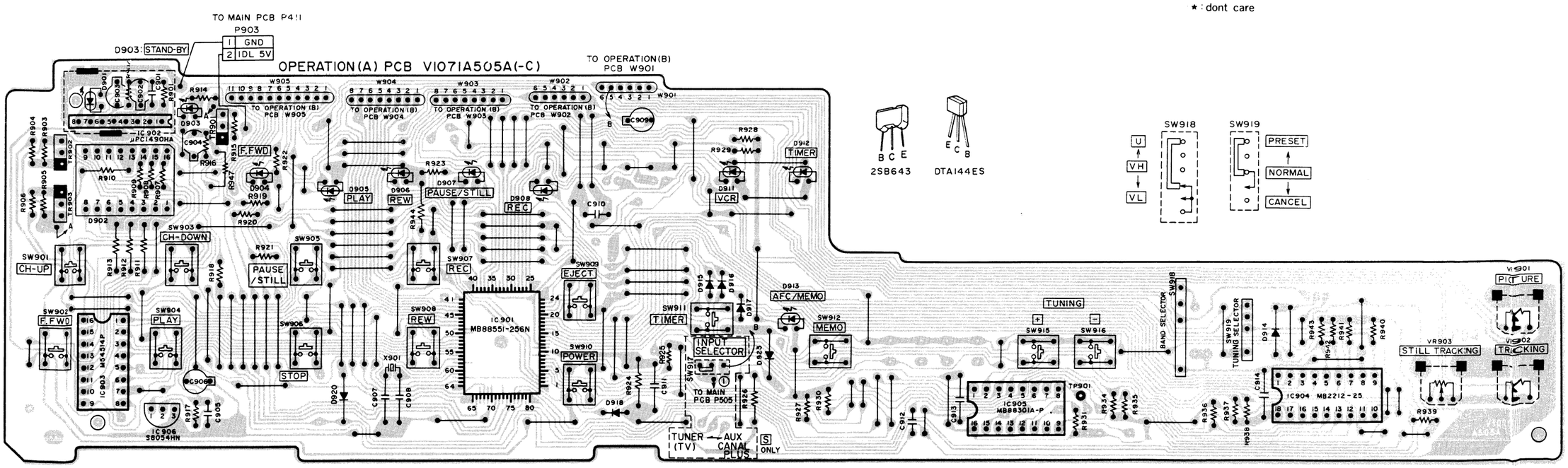
VOLTAGE MEASURED ON E.E(STOP) MODE.

VS-240SK
VS-244/245S
VS-247/248S
OPERATION(A)/(B) SCHEMATIC DIAGRAM

NO. 5-3 870507A



ENGLISH	FRENCH	ENGLISH	FRENCH	ENGLISH	FRENCH
PICTURE	IMAGE	FINE TUNE	REGL. FIN	REW	RETOUR RAPIDE
TRACKING	ALIGNEMENT	MEMO	MEMOIRE	STOP	STOP
STILL TRACKING	STABILITE IMAGE FIXE	TIMER	MINUTERIE	PLAY	LECTURE
TUNING SELECTOR	SELECTEUR DE SYNTONISATION	EJECT	EJECT	F. FWD	AVANCE RAPIDE
PRESET/NORMAL/CANCEL	PRESELECT/NORMAL/ANNULATION	POWER	ALIMENT	CHANNEL UP	STATION +
BAND SELECTOR	BANDES	REC	ENRG.	CHANNEL DOWN	STATION −
TUNING	ACCORD	PAUSE/STILL	PAUSE ARR/IMGE	STAND BY	ATTENTE



= NPN TRANSISTOR
= PNP TRANSISTOR

2SA1115
2SC2603

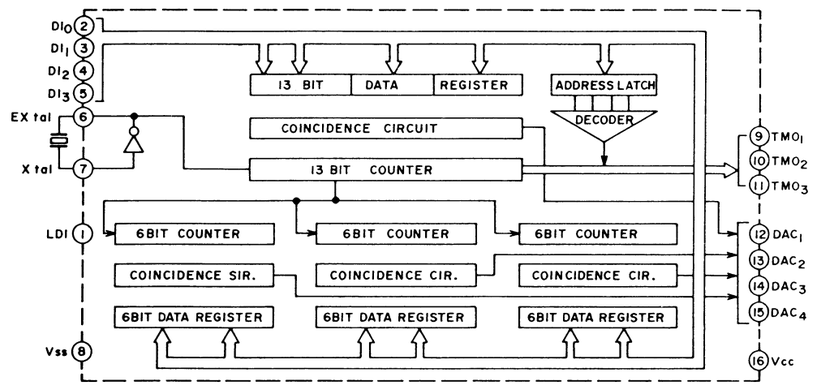
2SA970
2SC3112
2SC3383

2SC3246

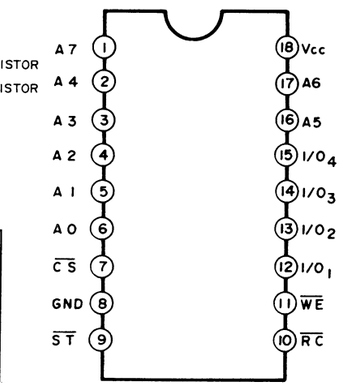
2SB643

DTA144ES

MB88301A-P (D/A CONVERTER)



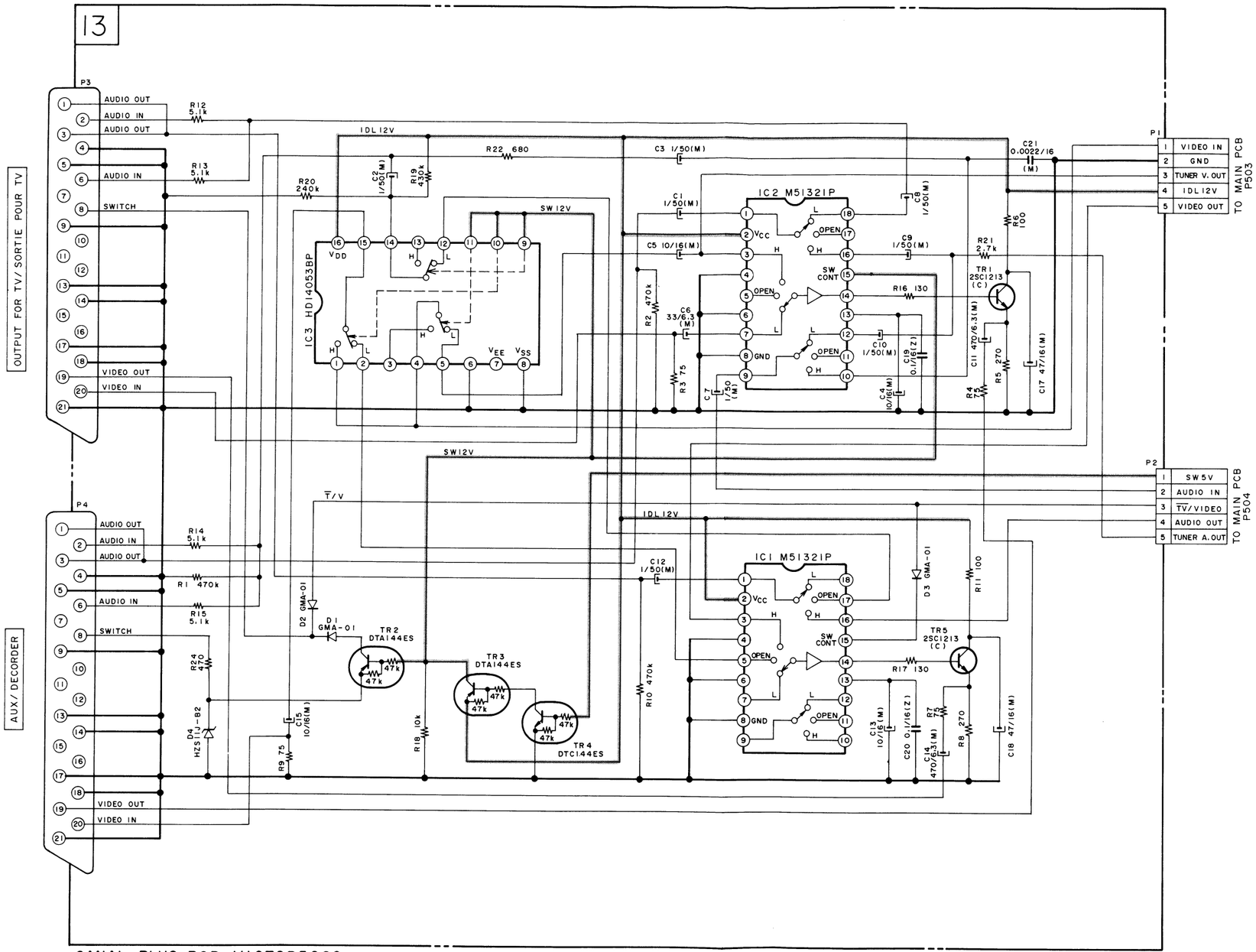
MBM2212-25 [1K(1.024)-BIT NON VOLATILE SRAM]



SYMBOL	PORT NAME
A0 to A7	Address inputs
I/01 to I/04	Data in/outputs
$\overline{CS}$	Chip select input
$\overline{WE}$	Write enable input
$\overline{ST}$	Store input
$\overline{RC}$	Recall input
Vcc	+B (+5V)
GND	Ground

$\overline{CS}$	$\overline{WE}$	$\overline{RC}$	$\overline{ST}$	MODE	DATE IN/OUT
H	*	H	H	NO FUNCTION	High impedance
L	H	H	H	SRAM READ MODE	IN
L	L	H	H	SRAM WRITE MODE	OUT
*	H	L	H	RECALL	High impedance
H	*	L	H	RECALL	〃 〃
*	H	H	L⌐	STORE	〃 〃
H	*	H	L⌐	STORE	〃 〃

* : dont care

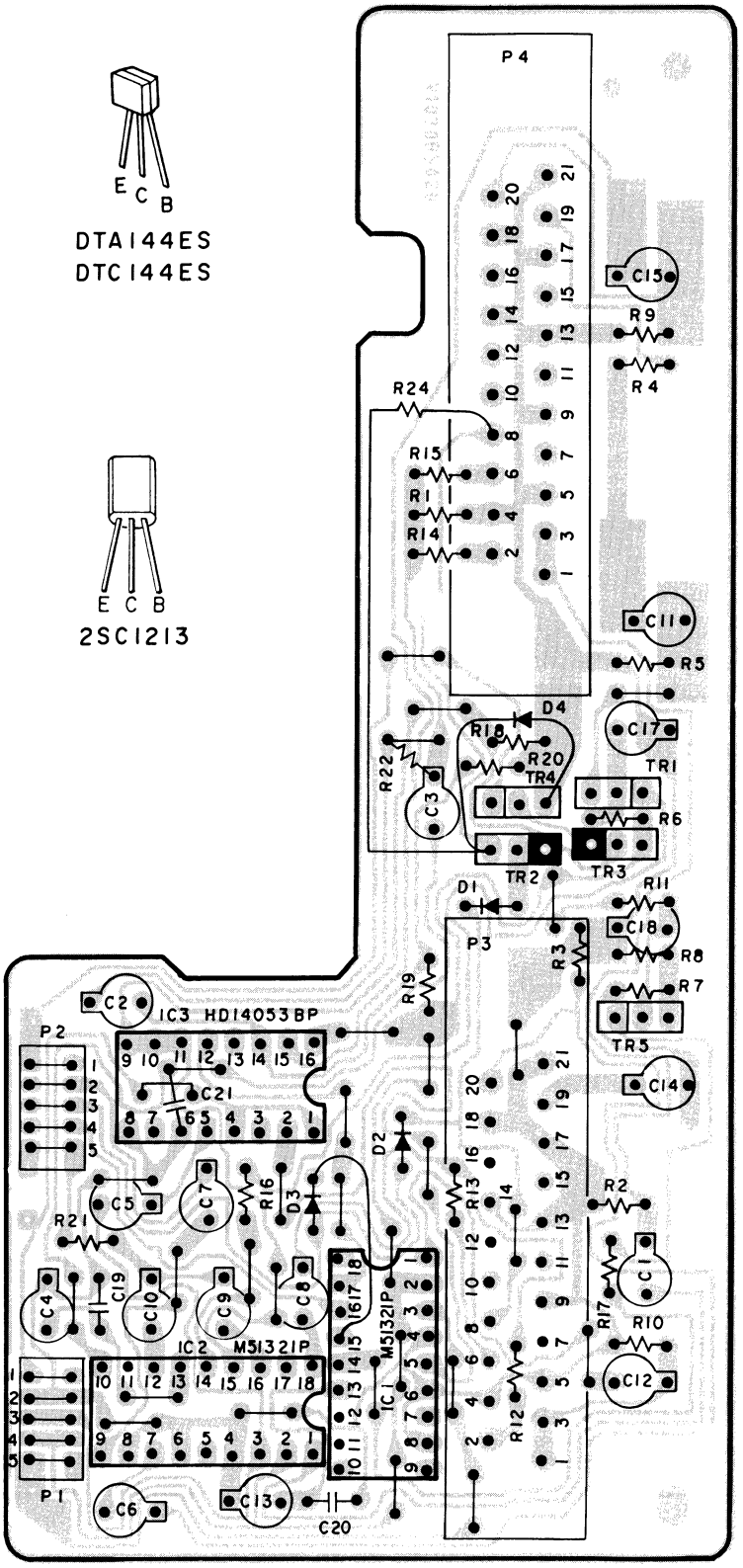


CANAL PLUS PCB V1070B5020

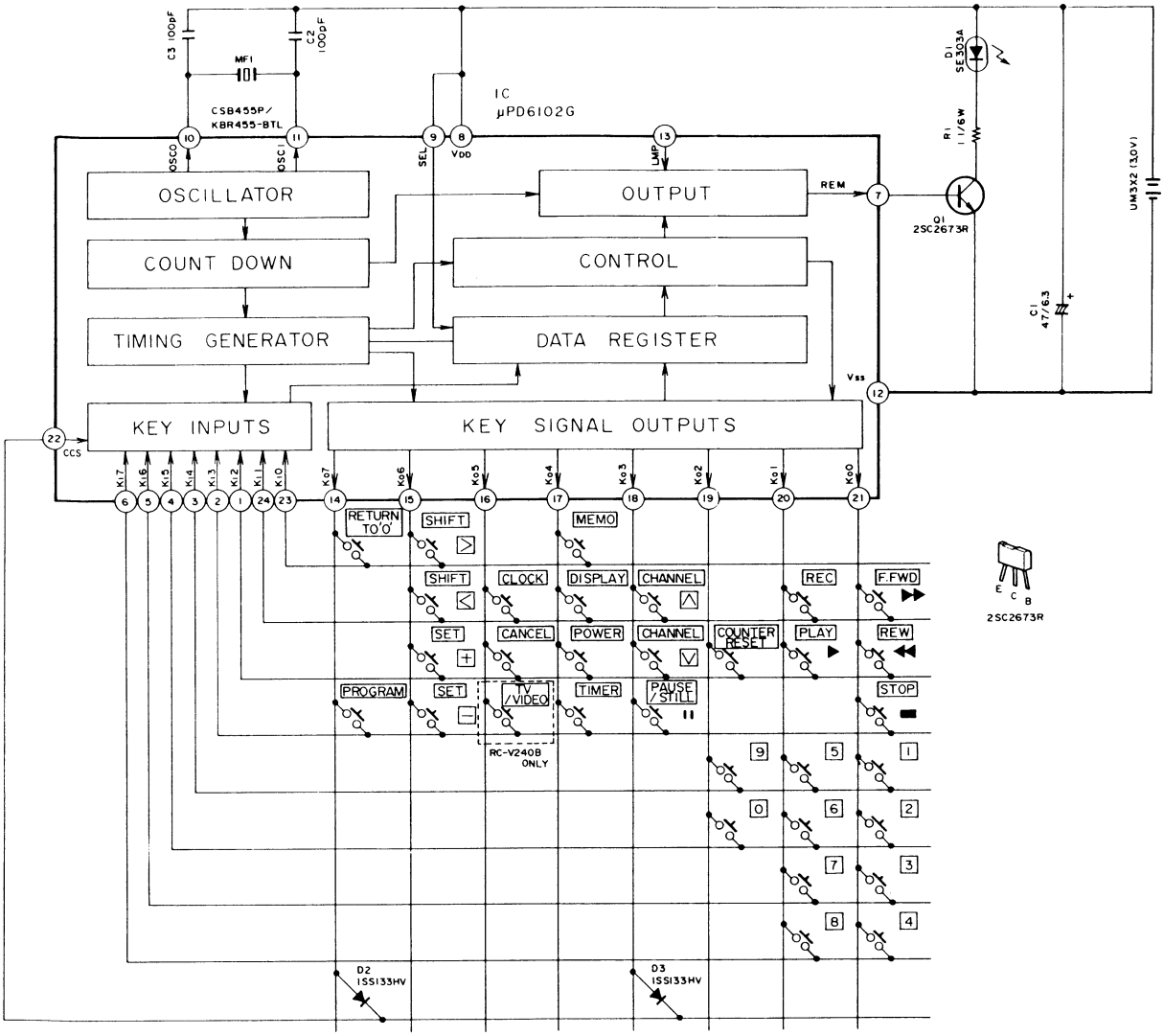
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50 WV

+B(POWER SUPPLY) LINE

VS-240SK
VS-244/245S
VS-247/248S
CANAL PLUS
SCHEMATIC DIAGRAM
NO. 5-4 870508A 2



CANAL PLUS PCB
V1070B5020



RC-V240A/B
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM

NO.5-5 870232A